Final Report

Monitoring Event 10 - November 1997
Sites 1 and 3 and Eastern Plume,
Naval Air Station, Brunswick, Maine

Volume 1 of 2
Text through Appendix C

Contract No. N62472-92-D-1296
Contract Task Order No. 0047

Prepared for

Department of the Navy
Northern Division
Naval Facilities Engineering Command
10 Industrial Highway
Mail Stop No. 82
Lester, Pennsylvania 19113-2090

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April 1998

QUALITY REVIEW STATEMENT

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Final Report Monitoring Event 10 - November 1997, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine

EA CTO Manager: Charles E. McLeod, P.E.

In compliance with EA's Quality Procedures for review of deliverables outlined in the Quality Management Plan, this final deliverable has been reviewed for quality by the undersigned Senior Technical Reviewer(s). The information presented in this report/deliverable has been prepared in accordance with the approved Implementation Plan for the Contract Task Order (CTO) and reflects a proper presentation of the data and/or the conclusions drawn and/or the analyses or design completed during the conduct of the work. This statement is based upon the standards identified in the CTO and/or the standard of care existing at the time of preparation.

Senior Technical Reviewer

Michael S. Battle, P.G.
Branch Manager, New York Operations

APRIL 3 1998
(Date)

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1. PROJECT ACTIVITIES

1.1 INTRODUCTION

Under Contract No. N62472-92-D-1296, Contract Task Order No. 0047, Northern Division, Naval Facilities Engineering Command contracted with EA Engineering, Science, and Technology to perform long-term monitoring at Sites 1 and 3 and Eastern Plume at Naval Air Station (NAS), Brunswick, Maine. NAS Brunswick is located south of the Androscoggin River between Brunswick and Bath, Maine (Figure 1). The locations of Sites 1 and 3 and the Eastern Plume are provided on Figure 2.

At Sites 1 and 3 and the Eastern Plume, the Navy is performing long-term monitoring, maintenance, and corrective measures as part of the long-term remedial actions required by the Record of Decision for a Remedial Action dated June 1992 for Sites 1 and 3 (ABB-ES 1992a) and the Record of Decision Interim Remedial Action dated June 1992 for the Eastern Plume (ABB-ES 1992b). A Long-Term Monitoring Plan (LTMP) was established pursuant to these Records of Decision (ABB-ES 1994). Approval of the LTMP was received from the U.S. Environmental Protection Agency (EPA) and State of Maine Department of Environmental Protection on 23 June 1994. The LTMP document establishes the monitoring and sampling requirements for Sites 1 and 3 and the Eastern Plume. A 5-year review evaluation will provide a basis for continued sampling and proposing refinements/alterations to the monitoring program or remedial activity, if appropriate.

Remedial actions at Sites 1 and 3 included construction of a low permeability slurry wall upgradient and surrounding the landfills to a depth of approximately 90 ft, construction of a low permeability cap atop the landfills, and placement of 2 ground-water extraction wells within the landfill limits. Extraction wells within the landfill limits (EW-6 and EW-7) were deactivated on 19 November 1997 due to continually decreasing yields and stabilized water levels within the confines of the slurry wall. Ground water in the Eastern Plume is being remediated by a treatment system consisting of 5 ground-water extraction wells designed to provide hydraulic control of the aquifer, and a treatment plant to remove volatile organic compounds (VOC) and inorganics from the ground water prior to discharge.

This report provides the results for the November 1997 monitoring/sampling event (Monitoring Event 10). Bi-monthly water level gauging data collected during September 1997 are also discussed in this report. A discussion of temporal trends and other observations based on data collected during tri-annual monitoring will be presented in the Annual Report for 1997.

1.2 MEASUREMENT OF WATER LEVEL ELEVATIONS

Water level measurements were obtained during Monitoring Event 10 on 3 November 1997 at the well, piezometer, and surface water gauging locations indicated in Tables 1 and 2 for Sites 1 and 3 and Eastern Plume, respectively. Ground-water extraction wells were gauged on

19 November 1997. Although not required by the LTMP, bi-monthly water level data were collected on 3 September 1997 from Sites 1 and 3 and Eastern Plume monitoring wells, piezometers, and extraction wells. This additional bi-monthly water level data were collected to identify any seasonality or significant variation in ground-water flow direction with time.

Water level measurements were taken at 61 ground-water monitoring wells, 20 EP-series piezometers, 10 P-series piezometers, 7 ground-water extraction wells, and 6 surface water gauging stations. Data were collected from the 6 surface water gauging points (GP-01 through GP-06) to provide additional data for use in interpretation of shallow ground-water flow. Water elevation data were collected at offsite locations during Monitoring Event 10 and the September 1997 bi-monthly gauging event, including MW-312, MW-316A, MW-316B, MW-317A, MW-317B, P-121, and P-123. The offsite data were collected to assess ground-water flow patterns to the east of Merriconeag Stream.

Water elevation data were collected during a period of consistent weather conditions, with 0.16 in. of precipitation noted during the September 1997 gauging period and no precipitation noted during the November 1997 gauging period.

Water level data were not obtained from MW-216B because it was abandoned in-place in 1995. Artesian conditions were noted in MW-207A and MW-309A during the September 1997 well gauging event, and in MW-309A during the November 1997 well gauging event.

Figure 3 provides the locations of ground-water monitoring wells, piezometers, extraction wells, and surface water gauging stations at Sites 1 and 3 and Eastern Plume. Sampling and gauging procedures are detailed in the final report for Monitoring Event 4 (EA 1996) and in the LTMP (ABB-ES 1994).

1.3 GROUND-WATER MONITORING, SAMPLING, AND ANALYSIS

The ground-water sampling program was performed during the period of 5-14 and 19 November 1997 at Sites 1 and 3 and Eastern Plume. Dedicated Grundfos Redi-Flo2 stainless steel and Teflon® submersible pumping systems were utilized at a majority of the wells to permit sampling using the low flow sampling technique. Three wells/piezometers located in the Eastern Plume were sampled using a peristaltic pump, including MW-105A, P-105, and P-106.

Ground-water samples were collected from 15 of 16 monitoring wells and at 2 of 2 extraction wells included in the long-term monitoring program at Sites 1 and 3. Consistent with previous sampling events, Well MW-202B did not yield enough water for sample collection. Well MW-216B has been abandoned, and is not included in the sampling program.

At the Eastern Plume site, ground-water samples were collected from 36 of 36 wells and piezometers, and 5 of 5 extraction wells. Three sampling locations were removed from the long-term monitoring program as of Monitoring Event 7; these included P-111, P-112, and P-132.

These locations were frequently dry or yielded highly turbid samples. Samples were collected from the ground-water treatment system combined influent and combined effluent to confirm that the facility is operating effectively, and that the effluent meets discharge requirements specified in the LTMP (ABB-ES 1994).

Tables 1 and 2 provide summaries of the wells/piezometers gauged and sampled as part of the long-term monitoring program. Figure 4 provides a schematic of a typical dedicated submersible pump assembly installed in a monitoring well. A detailed description of sample collection methods is provided in the final report for Monitoring Event 4 (EA 1996).

1.3.1 Water Quality Indicator Parameter Measurements

Water quality indicator parameters, including pH, conductivity, temperature, dissolved oxygen, and turbidity, were monitored to ensure stabilization of water quality prior to sample collection. Stabilization of water quality indicator parameters was considered achieved when measurements agreed to within 10 percent on three successive readings and turbidity was below 10 NTU. Although not required by the LTMP, oxidation-reduction potential (Eh) was recorded for informational purposes.

At Sites 1 and 3, 14 of 16 monitoring wells sampled reached equilibrium of the water quality indicator parameters prior to sampling, although turbidity was in excess of 10 nephelometric turbidity units (NTU) at 4 of these wells (MW-202A, MW-217A, MW-217B, and MW-220). Monitoring well MW-218 had one water quality parameter (Eh) which did not stabilize to within 10 percent on three successive readings. Turbidity stabilized to within 10 percent on three successive readings at MW-218, however, it was in excess of 10 NTU (22 NTU). This monitoring well has reported elevated turbidity results in previous sampling events. Two wells, MW-234R and MW-2101, had turbidity in excess of 10 NTU (458 NTU and 60 NTU, respectively), however, the water quality meter stopped functioning due to equipment malfunction. Ground-water samples collected at these locations indicated no visible turbidity and, therefore, were sampled.

At the Eastern Plume site, 31 of 36 wells/piezometers reached equilibrium of the water quality indicator parameters during well purging. Ten of the 36 wells/piezometers sampled reached equilibrium with turbidity measurements in excess of 10 NTU. At one monitoring well, 1 water quality indicator parameter did not stabilize to within 10 percent on three successive readings (MW-206A [conductivity]). Two wells, MW-206B and MW-207B, were purged dry and allowed to recharge prior to the collection of the samples. One well (MW-305) was purged for the maximum allotted time of 2 hours and one water quality parameter (turbidity) did not stabilize to within 10 percent on three successive readings. At one location (P-105), the YSI-6000 water quality meter stopped functioning during purging due to the cold weather, at which time one water quality parameter (turbidity) did not stabilize to within 10 percent on three successive readings

In general, water quality indicator parameter measurements recorded during Monitoring Event 10 were similar to those measured during Monitoring Event 9.

1.3.2 Analytical Program

Ground-water samples collected from Sites 1 and 3 and the Eastern Plume were submitted for analysis of Target Compound List (TCL) (VOC) plus a library search of 15 tentatively identified compounds by EPA Method 8260. Ground-water samples collected from Sites 1 and 3 were further analyzed for Target Analyte List (TAL) elements, including metals by inductively coupled plasma (EPA Method 6010) and graphite furnace (EPA Method 7000 Series), and mercury by cold vapor atomic adsorption (EPA Method 7470). Chromium was analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA Method 7191) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program.

1.4 SURFACE WATER, SEDIMENT, AND SEEP SAMPLING AND ANALYSIS

The surface water, sediment, leachate seep, and leachate seep sediment samples at Sites 1 and 3 were collected on 7 November 1997, in accordance with the general methodologies established in the LTMP (ABB-ES 1994). Exceptions to sampling activities specified in the LTMP during Monitoring Event 10 included:

- Leachate station seep samples were collected at 3 of 5 planned locations at the toe of the Sites 1 and 3 landfill footprint. Two seep sampling stations (SEEP-2 and SEEP-4) were dry at the time of sampling. Seep location SEEP-2 has been dry since August 1995 (Monitoring Event 3), and seep location SEEP-4 has been dry periodically throughout the sampling program (Monitoring Events 3, 4, and 6).

Table 1 lists the surface water, sediment, and leachate station seep and leachate station sediment locations included in the sampling program.

Surface water, sediment, and leachate station seep and sediment samples were collected for analysis of TCL VOC plus a library search of 15 tentatively identified compounds by EPA Method 8260 and TAL elements, including metals by inductively coupled plasma (EPA Method 6010), graphite furnace (EPA Method 7000 series), and mercury by cold vapor atomic adsorption (EPA Method 7470). Chromium was analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA Method 7191) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program.

1.5 LANDFILL GAS MONITORING AND CAP INSPECTION

Gas probe monitoring was conducted at Sites 1 and 3 on 19 November 1997 to monitor and identify subsurface gas migration, as specified in the LTMP (ABB-ES 1994). Landfill gas monitoring procedures were performed in accordance with the LTMP (ABB-ES 1994) and the final report for Monitoring Event 4 (EA 1996). Gas measurements were taken at 2 of the 3 gas probes (GP-05 and GP-06) located along the north and west side of the Weapons Compound and at each of the 14 gas vents (GV-01 through GV-14) located along the north and west sides of the landfill. Measurements were not collected at gas probe GP-04 due to field error. The gas probe casings were observed to be completed and locked, and appeared to be in good condition. Two gas vents (GV-01 and GV-14) were observed to have plastic impact barriers, although these vents are located in areas away from potential vehicular traffic.

At the time of the inspection, the landfill was covered by snow, making a complete inspection impossible. Previous inspections have noted the presence of erosion, and corrective measures have been scheduled to repair the areas of erosion noted in previous sampling events and to prevent further erosion. These corrective actions are scheduled to occur in Spring 1998 and will include mowing the vegetative cover, visual inspection of the landfill area, and completion of necessary repairs to the landfill cap and drainage system.

1.6 QUALITY ASSURANCE/QUALITY CONTROL

A rigorous quality assurance/quality control program is required by the LTMP to meet the data quality objectives of the aqueous and sediment sampling program, as outlined in the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994). The data obtained during the November 1997 sampling event were determined to be of sufficient quality to be used for the objectives specified in the LTMP (ABB-ES 1994). Field record forms for the Monitoring Event 10 sampling effort are provided in Appendix A.

1.7 ANALYTICAL DATA QUALITY REVIEW

As required by the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994), a review of laboratory data was performed on selected quality control parameters to evaluate precision, accuracy, representativeness, completeness, and comparability and data quality objective requirements. A summary of the analytical data quality review for chemical data is provided in Appendix B. With consideration of the data qualifiers and notes discussed in Appendix B, the data represented in this report were found to meet specified acceptance criteria and, therefore, represent data in compliance with the Quality Assurance Project Plan contained in the LTMP (ABB-ES 1994). Method detection limits for sediment and aqueous media are included in Appendix B. Note that these values are presented rather than practical quantitation limits used in previous monitoring event reports.

2. MONITORING EVENT RESULTS

2.1 WATER LEVEL GAUGING

Ground-water potentiometric elevations were measured on 3 September 1997 (bi-monthly data) and 3 November 1997 (Monitoring Event 10 data) at Sites 1 and 3 and the Eastern Plume. Extraction wells were gauged on 19 November 1997. Calculated ground-water elevation data are provided in Tables 3 and 4 for Sites 1 and 3 and the Eastern Plume, respectively. During the well gauging conducted as part of Monitoring Event 10, water level measurements were not obtained in the following dry wells/piezometers: MW-202B, P-110, P-111, and P-124. Water level data were not obtained from MW-216B because it was abandoned in-place in 1995. One offsite piezometer (P-123) was blocked and could not be gauged. Artesian conditions were noted at MW-207A and MW-309A during the 3 September 1997 well gauging event, and at MW-309A during the 3 November 1997 well gauging event. All 7 extraction wells (EW-1 through EW-7) were in operation at the time water table elevation data were collected on 3 September 1997. Pumping rates at each of the extraction wells at the time of water level gauging on 3 September 1997 were as follows: EW-1 (15 gal per minute [gpm]), EW-2 (28 gpm), EW-3 (29 gpm), EW-4 (20 gpm), EW-5 (11 gpm), EW-6 (less than 1 gpm), and EW-7 (1 gpm). Prior to cessation of pumping at EW-6 and EW-7, the 7 extraction wells at Sites 1 and 3 and Eastern Plume were gauged on 19 November 1997. Pumping rates at each of the extraction wells at the time of water level gauging on 19 November 1997 were as follows: EW-1 (12 gpm), EW-2 (25 gpm), EW-3 (11 gpm), EW-4 (20 gpm), EW-5 (11 gpm), EW-6 (less than 1 gpm), and EW-7 (2 gpm). Daily pumping rates for each extraction well for the period 1 August through 30 November 1997 are provided in Table 5.

Shallow and deep potentiometric surface contour maps were prepared based on the water level data collected on 3 September and 3 November 1997. The shallow potentiometric surface contour maps contain data for wells and piezometers screened in the upper stratified silt/sand unit, while the deep potentiometric surface contour maps contain data for wells and piezometers screened in the lower coarse sand unit. The shallow interval is unconfined, while the deep interval is considered semi-confined due to the presence of the transition unit above and the Presumscot Clay formation below. The distinction between shallow and deep potentiometric surfaces was made to reflect changes in potentiometric head observed at depth in wells located across Sites 1 and 3 and Eastern Plume. The interpreted ground-water flow direction for the 3 September and 3 November 1997 gauging events is shown on Figures 5 and 6, respectively, for the shallow portions of the aquifer, and Figures 7 and 8, respectively, for the deep portions of the aquifer.

Wells MW-210A and MW-211A, located at Sites 1 and 3, are screened in bedrock at significantly lower depths than deep overburden wells. The measured water elevations at these bedrock wells were not comparable to nearby wells screened in the deep overburden. Therefore, the data for these bedrock wells were not used in the development of potentiometric surface contour maps.

The predominant direction of ground-water flow in the shallow portion of the aquifer is southeasterly toward Mere Brook and Merriconeag Stream. Potentiometric surface elevations at shallow monitoring points measured on 3 September and 3 November 1997 near extraction wells EW-1, EW-3, and EW-5 show a notable effect of pumping at these extraction wells. A depression in the shallow potentiometric surface near EW-1 extends to the northwest toward Sites 1 and 3. The combination of the emplacement of the slurry wall at Sites 1 and 3, which is approximately 90 ft deep and is keyed into natural clay, and active pumping at extraction wells EW-1, EW-6, and EW-7 have created a ground-water trough located southeast of Site 1 (Figures 5 and 6).

The deep ground-water flow pattens indicate ground-water flow is predominantly toward the south-southeast. Well gauging data collected on 3 September and 3 November 1997 (Figures 7 and 8) indicate that the majority of drawdown due to the operation of extraction wells EW-1 through EW-5 was observed in the shallow overburden monitoring wells. Wells screened in the deep portion of the aquifer (in the deep coarse sand interval) experienced limited drawdown due to pumping from the extraction wells. Note that interim pumping at MW-311 resulted in significant drawdown at this location during the September and November 1997 gauging events.

At Sites 1 and 3, a comparison of water elevation data collected in May 1995 (prior to emplacement of the slurry wall) and water elevation data collected on 3 September 1997 indicates water elevations have decreased within the confines of the slurry wall. Potentiometric head decreased in shallow well MW-211B by 11.15 ft. Potentiometric heads decreased in deep wells MW-216A and MW-232A by 10.44 and 12.02 ft, respectively. Comparison of water elevations in well MW-2101 located outside the confines of the slurry wall and well MW-211B located within the confines of the slurry wall indicates an average potentiometric head difference of 10.15 ft is present between these wells. These changes are likely due to the emplacement of the slurry wall and landfill cap at Sites 1 and 3. The bottom of the waste material at Sites 1 and 3 has been reported to be 32.9 ft mean sea level, as noted at well MW-234R. The depth of ground water during September 1997 at monitoring well MW-234R was 33.98 ft mean sea level, which is approximately 1.1 ft above the bottom of the waste material.

A comparison of the shallow and deep potentiometric head contours indicates that, in general, there is increasing head with depth (upward vertical flow component) in low lying areas, such as near the Merriconeag Stream and Mere Brook. However, a decreasing potentiometric head with depth (downward vertical flow component) is generally observed in upland areas, such as near the Weapons Compound (Building No. 539) and south of Mere Brook.

Based on the 3 September 1997 well gauging data, the hydraulic gradient for the shallow portion of the aquifer shows variation across the study area. The hydraulic gradient ranges from 0.016 ft/ft in the central portion of the study area (from MW-307 to MW-206B), with higher gradients measured in the vicinity of the extraction wells. In the deep portion of the aquifer, the hydraulic gradient exhibits less variation and averages approximately 0.010 ft/ft, as measured parallel to the general southeasterly ground-water flow direction (from EP-8 to EP-4).

Artesian conditions were noted at 2 wells (MW-207A and MW-309A) during the 3 September 1997 gauging event and at 1 well (MW-309A) during the 3 November 1997 gauging event. These wells are screened in the lower coarse sand unit and are located near Merriconeag Stream, where ground surface elevations are less than deep potentiometric head elevations. Artesian wells generally exhibit ground-water head slightly above the riser pipe (i.e., less than 3 in.). Equipment to measure these artesian wells will be installed and utilized in future monitoring events.

Observations regarding well condition were made during the well gauging program. Notable observations at Sites 1 and 3 include: repairs required at monitoring well MW-217A (separated extension approximately 10 ft below the top of casing) and monitoring well MW-217B (pump chord shortened). At Eastern Plume, the two artesian wells (MW-207A and MW-309A) require repair (replace outer steel casing). Repairs have been scheduled to occur during the Spring of 1998. The monitoring locations are secured with locks and monitoring points are labeled.

2.2 WATER QUALITY INDICATOR PARAMETERS

Water quality indicator parameters were measured during the collection of ground-water, surface water, and leachate seep samples according to the methods specified in the LTMP (ABB-ES 1994). The results of water quality indicator parameter monitoring at the time samples were collected are summarized in Tables 6 and 7 for ground-water samples collected at Sites 1 and 3 and the Eastern Plume, respectively. Table 8 provides a summary of the water quality indicator parameter measurements taken in surface water and seep samples collected at Sites 1 and 3. Water quality indicator parameters measured in water samples collected from extraction wells and treatment plant combined influent and treated effluent samples are summarized in Table 9. The Field Record of Well Gauging, Purging, and Sampling forms, and Field Record of Surface Water/Sediment Sampling forms are provided in Appendix A.

2.2.1 Sites 1 and 3 and Eastern Plume

Notable results of water quality indicator parameter measurements include:

- With the exception of 1 well (MW-217B, 323 NTU), turbidity did not exceed 30 NTU in other wells at Sites 1 and 3.

- Elevated levels of conductivity and turbidity were measured at MW-217B, and elevated conductivity was measured at MW-210R and MW-218 compared to other wells at Sites 1 and 3. Elevated conductivity and turbidity are frequently reported at these locations; these elevated results are likely due to the location of these wells within or near the landfill.

- Elevated dissolved oxygen concentrations (>7.0 mg/L) were noted in 3 wells at Sites 1 and 3: MW-203 (7.39 mg/L), MW-204 (8.49 mg/L), and MW-219 (7.95 mg/L).

- At the Eastern Plume, turbidity values below 10 NTU were recorded at 23 of 36 monitoring wells and piezometers sampled. Turbidity values stabilized at all locations prior to sample collection, with the exception of monitoring wells MW-207B (low yielding well), MW-305 (purged maximum allotted time of 2 hours), and piezometer P-105 (water quality meter stopped functioning due to cold weather).

- Elevated dissolved oxygen concentrations approaching saturation (>9.0 mg/L) were noted in 10 wells at the Eastern Plume: MW-105A (10.11 mg/L), MW-106 (10.43 mg/L), MW-206B (10.03 mg/L), MW-209 (10.89 mg/L), MW-222 (10.74 mg/L), MW-223 (11.91 mg/L), MW-224 (10.67 mg/L), MW-225B (9.79 mg/L), MW-231B (10.79 mg/L), and MW-310 (9.36 mg/L). All but 2 of these wells (MW-105A and MW-310) are screened within the unconfined upper stratified sand/silt transition unit; all of the wells are located along the western or southern boundaries of the Eastern Plume.

Surface water and leachate seep sample water quality indicator parameter measurements are summarized in Table 8. Turbidity in surface water showed little variability with distance from the landfill. Higher turbidity values were observed in surface water samples during Monitoring Event 10 in comparison with Monitoring Event 9 (July 1997). It should be noted that Mere Brook has had beaver activity, which has caused the water level to rise resulting in elevated turbidity (i.e., greater than 1,000 NTU) occurring at 2 of the 3 leachate seep samples.

2.2.2 Ground-Water Extraction and Treatment System

Seven ground-water samples were collected from the extraction well network at Sites 1 and 3 and the Eastern Plume. In addition, combined influent and treated effluent water samples were collected from the ground-water extraction and treatment system. It should be noted that the 2 Sites 1 and 3 extraction wells (EW-6 and EW-7) ran intermittently from 1 through 18 November 1997 and were permanently deactivated on 19 November 1997 after sample collection was completed. Table 9 summarizes the water quality indicator parameter measurements recorded at these locations. Notable results of water quality indicator parameters measured during Monitoring Event 10 include:

- Elevated dissolved oxygen concentrations were recorded in the combined effluent, which is likely attributable to aeration and mixing, and the addition of hydrogen peroxide in the ultraviolet/peroxidation system, located immediately upstream of the effluent sample port.

Water quality data measured during Monitoring Event 10 reported slightly higher pH and turbidity values, and nominally lower conductivity and redox potential values, for extracted ground water in comparison to water quality measurements recorded during Monitoring Event 9 (July 1997).

2.3 GROUND WATER

2.3.1 Sites 1 and 3

Table 10 provides a summary of the analytical results for the ground-water samples collected at Sites 1 and 3. Appendix C provides a summary table for tentatively identified compounds (VOC) reported in these samples. Summary tables (Form I documents) for the analyses performed are provided in Appendix D.

A total of 18 VOC were reported at detectable concentrations at Sites 1 and 3 monitoring wells. VOC were reported in 7 of the 15 monitoring wells sampled at Sites 1 and 3 during the November 1997 sampling event. The majority of VOC were reported at concentrations less than 5 μg/L. No VOC were reported in samples collected at the following 8 wells: MW-204, MW-210B, MW-210R, MW-217A, MW-219, MW-220, MW-232A, and MW-2101.

VOC reported at concentrations above corresponding State Maximum Exposure Guidelines (MEG) and/or Federal Drinking Water Maximum Contaminant Levels (MCL) in ground-water samples are summarized below:

- 1,2-Dichloroethane was reported in MW-217B at a concentration of 18 μg/L which exceeds the State MEG and Federal MCL of 5 μg/L.

- Vinyl chloride was reported in 3 samples at concentrations which exceed the State MEG of 0.15 μg/L and/or the Federal MCL of 2 μg/L: MW-215R (0.5J μg/L), MW-216A (11μg/L), and MW-217B (100D μg/L).

A total of 17 target analytes were reported in ground-water samples collected from Sites 1 and 3 wells. Target analytes were reported in all Sites 1 and 3 monitoring wells. Target analytes reported above primary Federal MCL and State MEG in ground water are summarized below:

- Antimony was reported at a concentration of 2.9 μg/L in MW-202A, which exceeds the State MEG of 2.8 μg/L. However, antimony was reported at a concentration between the Instrument Detection Limit and the Contract Required Detection Limit.

- Arsenic was reported at a concentration of 154 μg/L in MW-218, which exceeds the Federal MCL of 50 μg/L.

- Manganese was reported at concentrations above the State MEG of 200 μg/L in 6 ground-water samples: MW-202A (2,620 μg/L), MW-210B (827 μg/L), MW-215R (1,160 μg/L), MW-216A (2,090 μg/L), MW-217B (4,370 μg/L), and MW-218 (663 μg/L).

Inorganic concentrations were reported above corresponding primary Federal MCL and State MEG and were also elevated compared with reported concentrations at MW-2101, located upgradient of the landfill at Sites 1 and 3. Five wells (MW-202A, MW-217A, MW-217B, MW-218, and MW-220) where elevated turbidity was reported (greater than 10 NTU) also reported elevated concentrations of inorganics.

2.3.2 Eastern Plume

Table 11 summarizes the analytical results for the ground-water samples collected at the Eastern Plume. Appendix C provides a summary table for tentatively identified VOC reported in the samples. The summary tables (Form Is) for these analyses are provided in Appendix D.

A total of 14 VOC were reported at detectable concentrations at Eastern Plume wells. VOC were reported in 18 of 36 samples. VOC reported in site wells/piezometers at concentrations above Federal MCL and State MEG are summarized below:

- 1,1,1-Trichloroethane was reported above the State MEG (200 μg/L) and Federal MCL (200 μg/L) in samples collected from 3 wells/piezometers: MW-311 (5,800D μg/L), P-105 (1,600D μg/L), and P-106 (2,300D μg/L).

- Methylene chloride was reported above the Federal MCL of 5 μg/L in MW-311 at 18 μg/L.

- Trichloroethene was reported above the State MEG of 5 μg/L and Federal MCL of 5 μg/L in samples collected from 11 wells/piezometers: MW-205 (95D μg/L), MW-207A (66D μg/L), MW-208 (17 μg/L), MW-225A (9 μg/L), MW-229B (47D μg/L), MW-306 (52D μg/L), MW-311 (940D μg/L), MW-319 (32D μg/L), P-105 (360D μg/L), P-106 (670D μg/L), and MW-NASB-212 (16 μg/L).

- Tetrachloroethene was reported above the State MEG of 3 μg/L and/or Federal MCL of 5 μg/L in samples collected from 8 wells/piezometers: MW-205 (11 μg/L), MW-207A (35D μg/L), MW-208 (4 μg/L), MW-229B (4 μg/L), MW-311 (46E μg/L), MW-319 (43D μg/L), P-105 (7 μg/L), and P-106 (15 μg/L).

- 1,1-Dichloroethene was reported above the State MEG of 7 μg/L and Federal MCL of 7 μg/L in samples collected from 5 wells/piezometers: MW-205 (18 μg/L), MW-306 (9μg/L), MW-311 (600E μg/L), P-105 (160JD μg/L), and P-106 (220D μg/L).

- 1,1,2-Trichloroethane was reported above the State MEG of 3 μg/L and Federal MCL of 5 μg/L in the sample collected from MW-311 (8 μg/L).

2.3.2.1 Total Volatile Organic Compound Isoconcentration Maps

A review of total VOC concentration isocontours for wells screened in the unconfined shallow interval (upper transition unit) at Sites 1 and 3 and the Eastern Plume (Figure 9) indicates that VOC concentrations above corresponding State MEG and/or Federal MCL were detected in two areas within the Sites 1 and 3 landfill: in the vicinity of MW-217B and MW-215R and near MW-202A. These results are consistent with previous sampling events. No shallow wells or piezometers in the Eastern Plume reported VOC concentrations above corresponding MEG or MCL, or reported total VOC greater than 100 μg/L.

A review of total VOC concentration isocontours for wells screened within the deep interval (semi-confined coarse sand unit) at Sites 1 and 3 and the Eastern Plume (Figure 10) indicates that two areas of the Eastern Plume and two areas of Sites 1 and 3 show reported VOC concentrations above corresponding State MEG and Federal MCL. The first area in the Eastern Plume extends from MW-NASB-212 in the northeastern portion of the Eastern Plume towards EW-4. The second area in the Eastern Plume extends from EW-3 southeast toward MW-311 and south toward MW-229B. Exceedances of State MEGs and/or Federal MCLs at Sites 1 and 3 were reported in the vicinity of extraction well EW-7, extending north to monitoring well MW-216A. Another area above State MEG and Federal MCL was noted at EW-6. These results are consistent with previous sampling events.

2.3.2.2 Perimeter Monitoring Wells

A network of perimeter monitoring wells is present along the property boundary of NAS Brunswick. Perimeter monitoring wells at Sites 1 and 3 and the Eastern Plume include: MW-231A, MW-231B, MW-318, MW-313, MW-311, MW-309A, MW-309B, and MW-305. The majority of perimeter monitoring wells (MW-231A, MW-231B, MW-305, MW-309A, MW-309B, and MW-318) reported no concentrations of VOC. One perimeter monitoring well at Sites 1 and 3 (MW-218) reported elevated concentrations of arsenic and manganese above State MEG or Federal MCL. One perimeter monitoring well located in the southeast portion of the Eastern Plume (MW-311) reported concentrations of 6 VOC above corresponding State MEG or Federal MCL. Reported concentrations at perimeter wells are similar to previous monitoring events with respect to reported VOC concentrations.

2.3.3 Ground-Water Extraction and Treatment System

Table 12 provides a summary of the VOC and target analytes reported in ground-water extraction well, treatment system influent, and treatment system combined effluent samples collected at the ground-water extraction and treatment system. Appendix C provides a summary table for tentatively identified VOC reported in the samples. Laboratory data (Form I documents) are provided in Appendix D.

A total of 17 VOC were reported at detectable concentrations from extraction well and treatment system samples. VOC were reported in all extraction well and treatment system samples.

There were no exceedances of the ground-water treatment plant discharge limits for VOC reported in the combined effluent sample.

A total of 17 target analytes were reported in extraction wells (EW-6 and EW-7 only) and treatment system samples. Target analytes were reported in both Sites 1 and 3 extraction wells and the treatment system samples. There were no target analytes reported in the combined effluent sample at concentrations exceeding the ground-water treatment system discharge limits.

2.4 SURFACE WATER

Table 13 provides a summary of the VOC and TAL reported in surface water samples collected at Sites 1 and 3. Appendix C provides a summary table for tentatively identified VOC reported in surface water samples. The reports of laboratory analyses (Form I documents) for the surface water samples are provided in Appendix D.

One VOC was reported in surface water sample SW-1 (methylene chloride, 0.7 J), although this compound is a common laboratory contaminant. Two VOC (chloroform [17 μg/L and 16 μg/L, respectively] and methylene chloride [3 μg/L and 3 μg/L]) were reported in the associated equipment rinsate blank and source water blank. A total of 14 inorganic analytes were reported in surface water samples. Elevated concentrations of iron, calcium, magnesium, manganese, potassium, and sodium were reported in surface water samples SW-1, SW-2, and SW-3 which are located near the toe of the landfill, in comparison with downstream samples SW-4 through SW-7.

2.5 SEDIMENT

Table 14 provides a summary of the constituents reported in sediment samples collected at Sites 1 and 3. Appendix C provides a summary table for tentatively identified VOC reported in the samples. The reports of laboratory analyses (Form I documents) for sediment samples are provided in Appendix D.

A total of 3 VOC (1,2-dichlorobenzene [8 μg/L], 1,4-dichlorobenzene [19 μg/L], and chloroethane [10 μg/L]) were reported in 1 of 7 sediment samples (SED-6). The only VOC identified as a constituent of concern (1,1,2,2-tetrachloroethene) was not reported in any of the 7 sediment samples. A total of 21 target inorganic analytes were reported in sediment samples. All sediment samples reported detectable concentrations of TAL elements.

2.6 LEACHATE STATION SAMPLES

2.6.1 Seep

Table 15 provides a summary of the constituents reported in leachate station seep samples collected at Sites 1 and 3. Seep samples were not collected at 2 of the 5 planned locations (SEEP-2 or SEEP-4) because these locations were dry and no aqueous samples could be obtained. Appendix C provides a summary table for tentatively identified VOC reported in the samples. The analytical reports for leachate analyses (Form Is) are provided in Appendix D.

A total of 10 VOC were reported at low concentrations in leachate station seep samples. VOC were reported at detectable concentrations in the 3 leachate station seep samples. A total of 19 target inorganic analytes were reported in seep samples. Each of the 3 seep samples reported detectable concentrations of target analytes. The highest concentrations of target inorganic analytes were reported in SEEP-3; elevated aluminum, antimony, barium, cadmium, chromium, cobalt, iron, lead, magnesium, manganese, nickel, selenium, sodium, and zinc concentrations were noted.

2.6.2 Sediment

Table 16 provides a summary of the constituents reported in the 5 leachate station sediment samples collected at Sites 1 and 3. Appendix C provides a summary table for tentatively identified VOC reported in leachate station sediment samples. Reports of laboratory analyses (Form Is) are provided in Appendix D.

A total of 5 VOC (methylene chloride, 1,2-dichlorobenzene, 1,4-dichlorobenzene, acetone, and 2-butanone) were reported in leachate station sediment samples. VOC were reported in 4 of 5 leachate station sediment samples (LT-1 and LT-3 through LT-5). A total of 22 target inorganic analytes were reported in leachate station sediment samples. Target inorganic analytes were reported in all leachate station sediment samples.

2.7 LANDFILL GAS MONITORING

Table 17 provides a summary of landfill gas monitoring conducted at the gas probes and gas vents located at Sites 1 and 3. Sample data were noted both in field logbooks and on the field record forms provided in Appendix A. The gas pressure from all gas probes and gas vents was below the detection limit of the differential pressure gauge (<0.01 in. water). Depleted oxygen concentrations were observed at 1 of 2 gas probes and 12 of 14 gas vents. The lowest percent oxygen measurement was noted at vent GV-2 (1.26 percent). Methane was not detected at any of the gas probes. Methane was reported in gas vents ranging in concentration from non-detect (GV-08 through GV-12) to 9.0 percent (GV-02). Carbon dioxide was reported in the two gas probes monitored at 0.5 percent (GP-05) and 4.2 percent (GP-06). Carbon dioxide was reported in the gas vents at concentrations ranging from non-detect (GV-12) to 18.9 percent (GV-02).

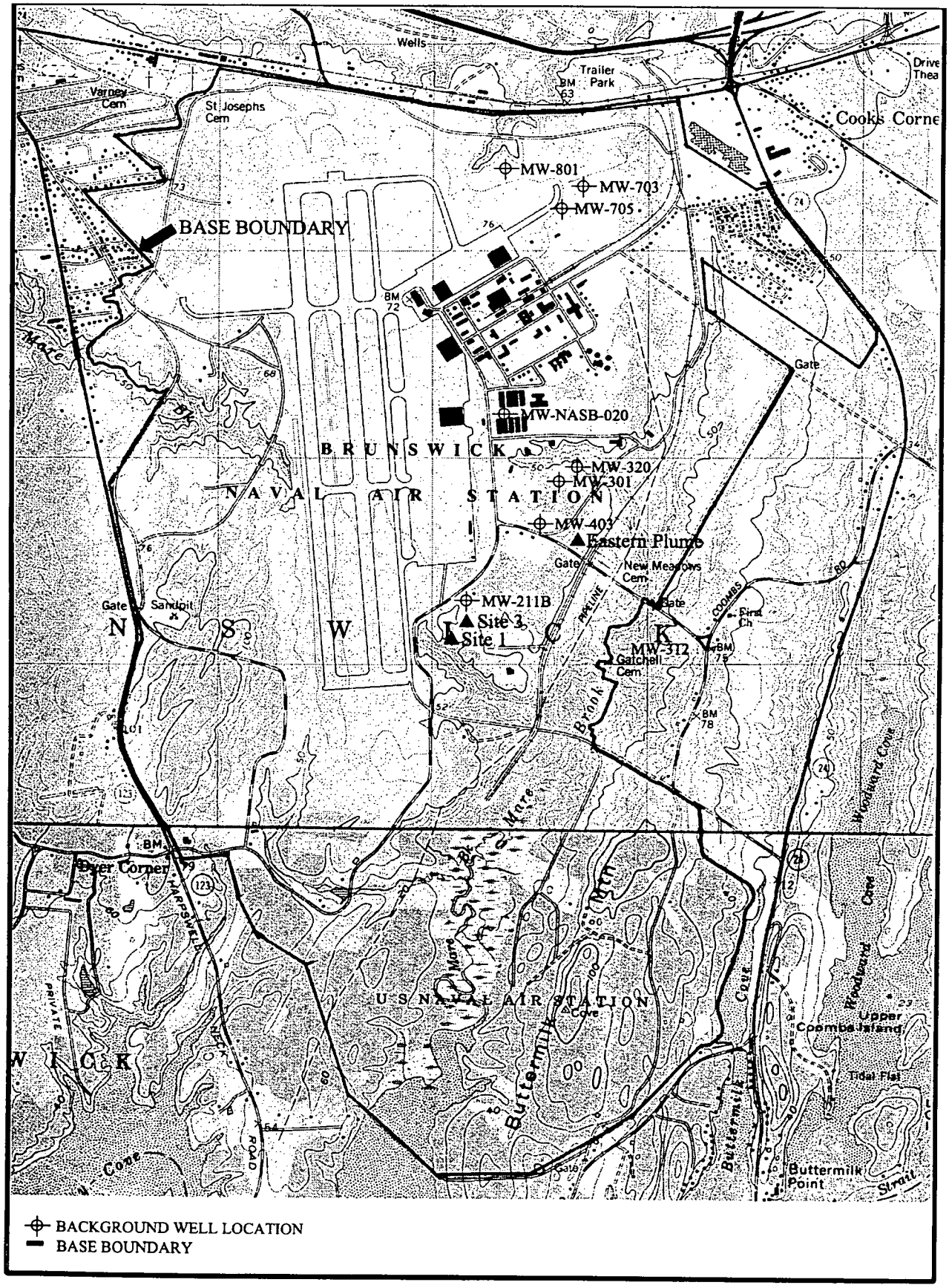
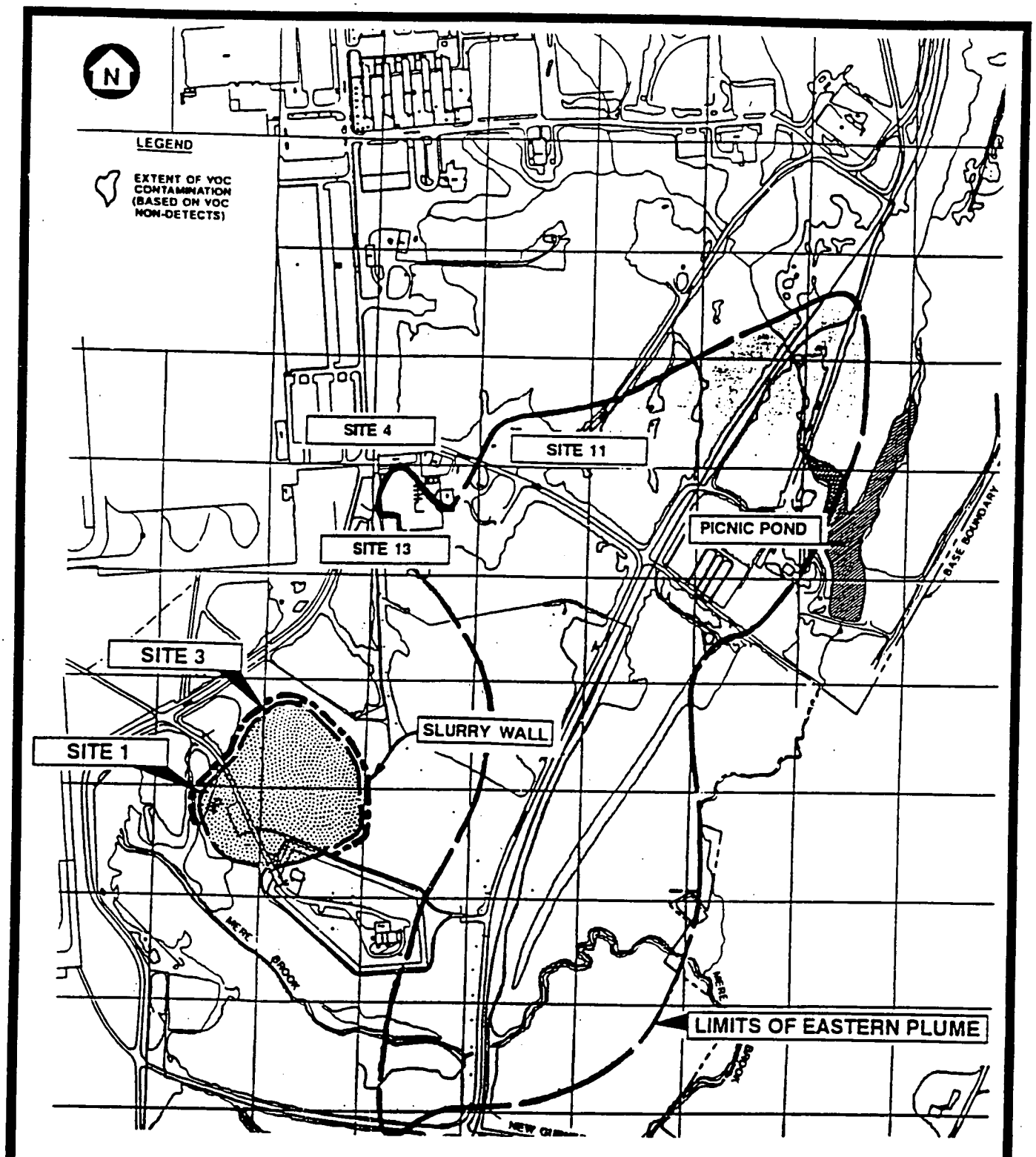
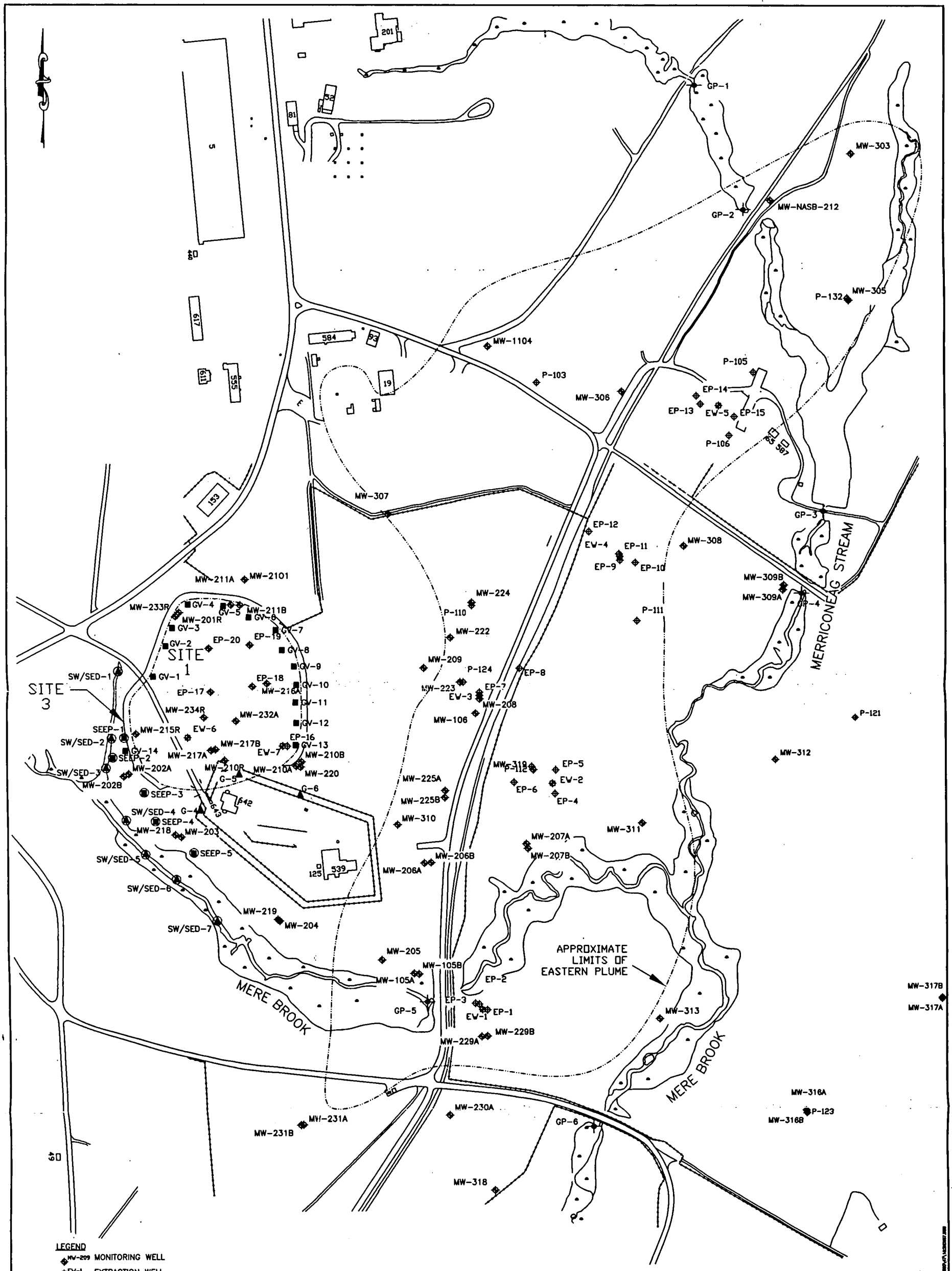


Figure 1. Site location map and background well locations, Naval Air Station Brunswick, Maine.



Source: Figure 1-3 of report titled, "Final Long-Term Monitoring Plan for Building 95, Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine," prepared by ABB Environmental Services, Inc. (August 1994).

Figure 2. Site plan for Sites 1 and 3 and Eastern Plume, Naval Air Station, Brunswick, Maine.



LEGEND

- MW-209 MONITORING WELL
- EW-1 EXTRACTION WELL
- EP-11 PIEZOMETER
- SEEP-1 SEEP LOCATIONS
- SW/SED-1 SURFACE WATER/SEDIMENT
- GV-1 GAS VENT LOCATIONS
- G-4 GAS PROBE LOCATIONS
- GP-1 GAUGE POINT LOCATIONS
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

NOTE:

1. SITE PLAN TAKEN FROM THE INTEGRAPH VERSION 5 BASE-WIDE PLAN PROVIDED BY NAS BRUNSWICK PUBLIC WORKS DEPARTMENT ON 13 OCTOBER 1995.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 3

MONITORING WELL LOCATION PLAN

DATE	25 MARCH 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29500.47
SCALE	1"=400'
FILE NAME	1&3NOV97
DRAWING NUMBER	-
SHEET NUMBER	-

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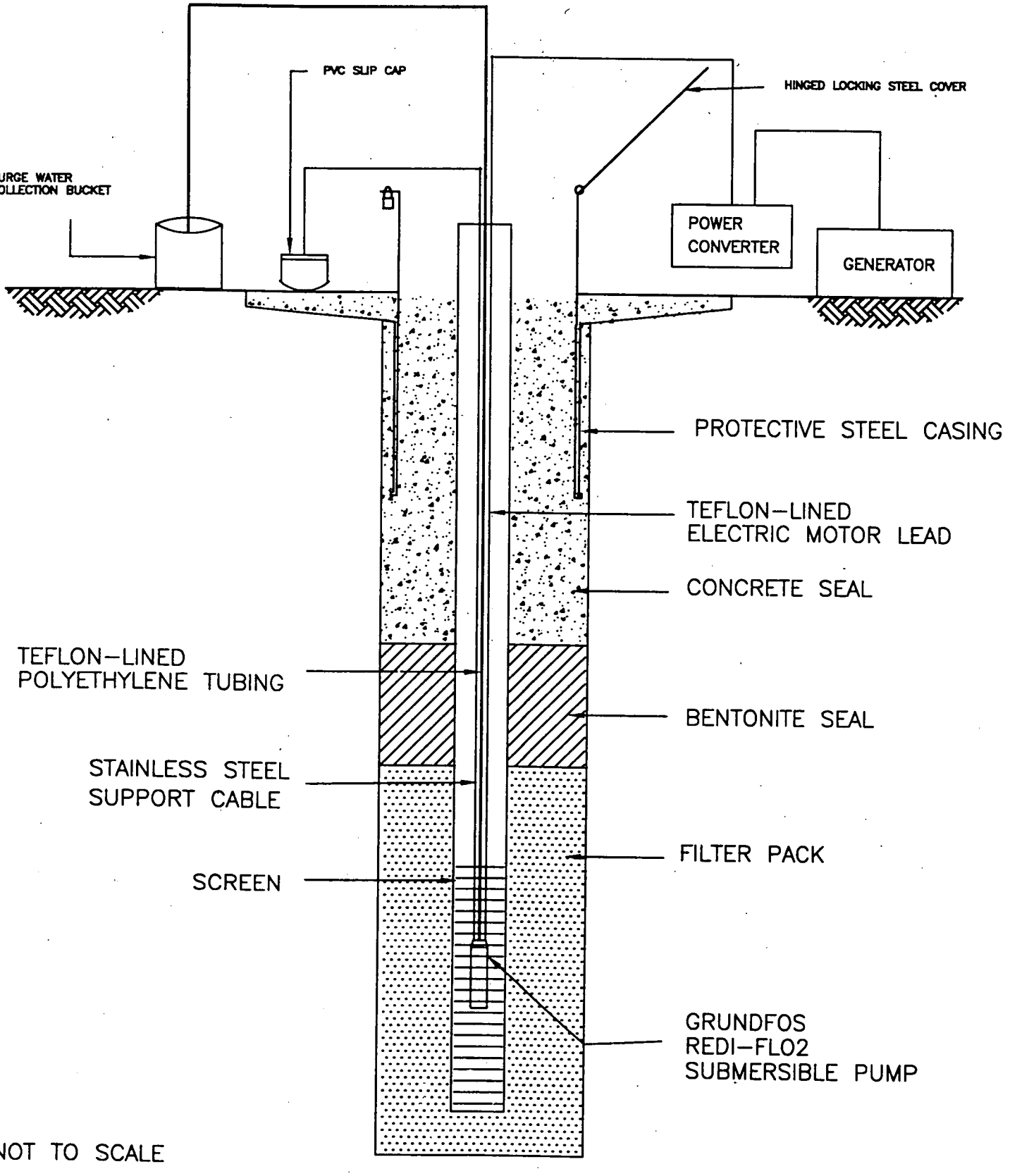

DWG. FILE No. F:\CAD\AGWELL

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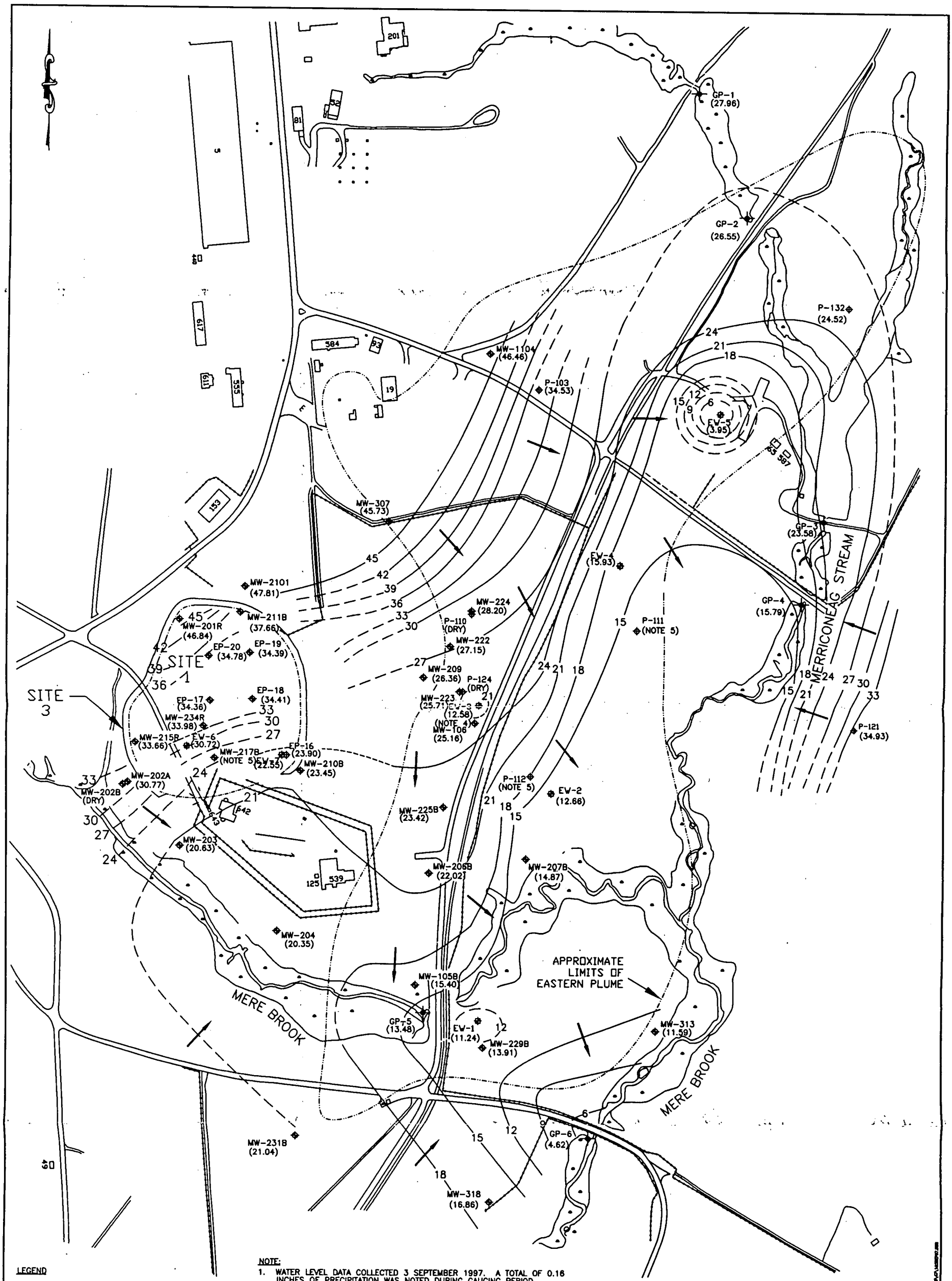
SCHEMATIC OF GENERALIZED INSTALLATION OF DEDICATED SUBMERSIBLE PUMP SYSTEM IN A MONITORING WELL

FIGURE 4

PROJECT MGR	DESIGNED BY	DRAWN BY	CHECKED BY	SCALE	DATE	PROJECT NO	FILE No.
MSB		SY		N.T.S.	26 JUNE 1995	29600.47	PUMP



LEGEND

- MW-209 (26.36) — MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- EP-11 (28.55) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (13.48) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

NOTE:

1. WATER LEVEL DATA COLLECTED 3 SEPTEMBER 1997. A TOTAL OF 0.16 INCHES OF PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. CONTOUR INTERVAL = 3 FT.
4. THE CONTOURS FOR 18, AND 15 FT ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
5. ANOMALOUS WATER ELEVATION, NOT USED DURING CONTOUR MAP GENERATION.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 5

INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 3 SEPTEMBER 1997

DATE	25 MARCH 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3SEP97
DRAWING NUMBER	–
SHEET NUMBER	–

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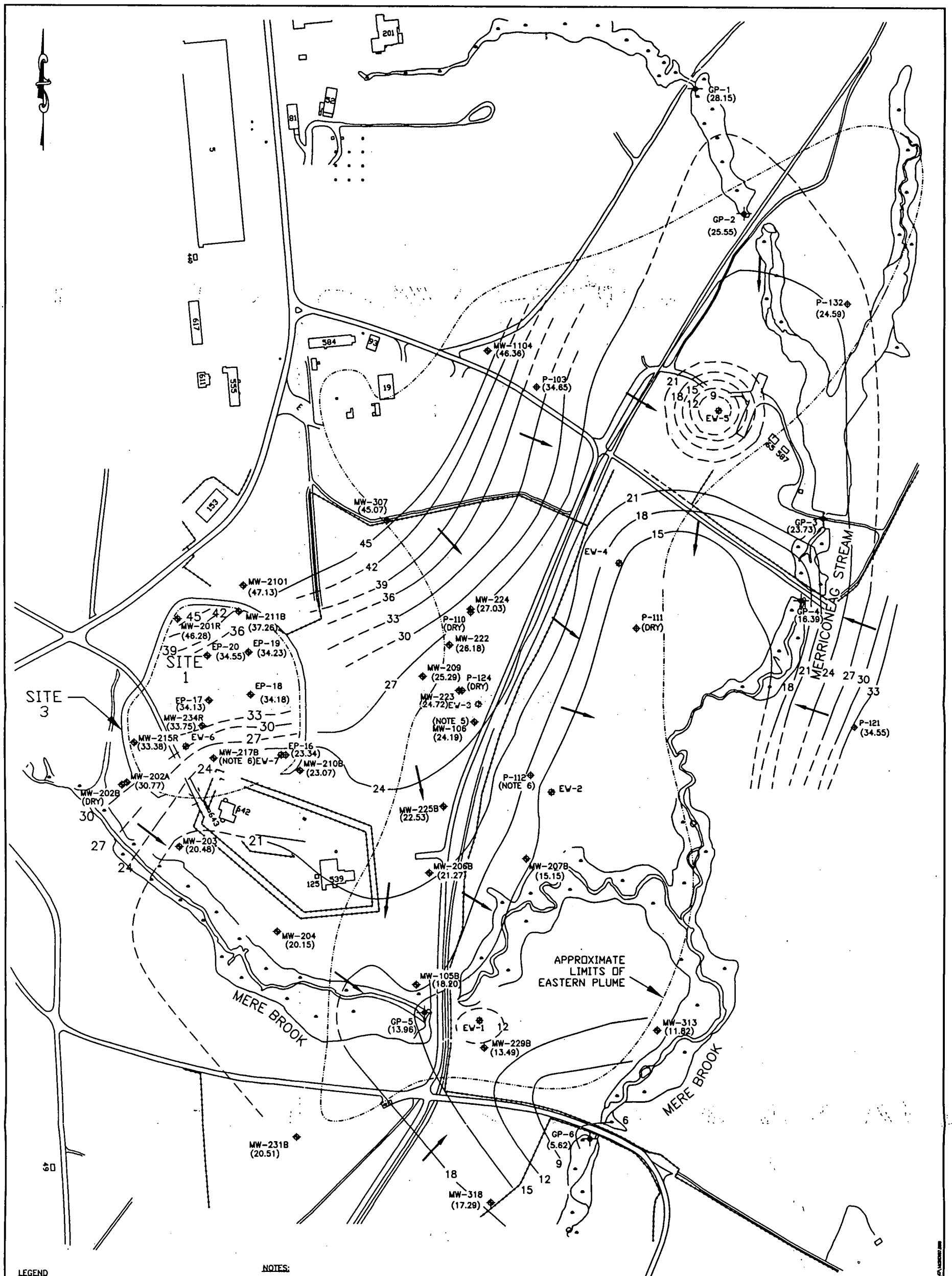

LEGEND

- MW-209 (25.29) MONITORING WELL (POTENTIOMETRIC SURFACE ELEVATION, FT MSL)
- (NA) NOT AVAILABLE, RISER BLOCKED
- EW-1 EXTRACTION WELL
- EP-11 (27.68) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (13.96) SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

NOTES:

1. WATER LEVEL DATA COLLECTED 3 NOVEMBER 1997, NO PRECIPITATION WAS NOTED DURING THE GAUGING EVENT.
2. WATER LEVEL DATA COLLECTED AT EXTRACTION WELLS EW-1 THROUGH EW-7 ON 19 NOVEMBER 1997.
3. EXTRACTION WELLS EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
4. CONTOUR INTERVAL = 3 FT.
5. THE CONTOURS FOR 24, 21, 18, 15, 12, 9, 6, 3 AND 0 ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DUE TO MAP SCALE.
6. ANOMALOUS WATER ELEVATION, NOT USED DURING CONTOUR MAP GENERATION.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 6
INTERPRETED SHALLOW GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 3 AND 19 NOVEMBER 1997

DATE	25 MARCH 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3NOV97
DRAWING NUMBER	–
SHEET NUMBER	–

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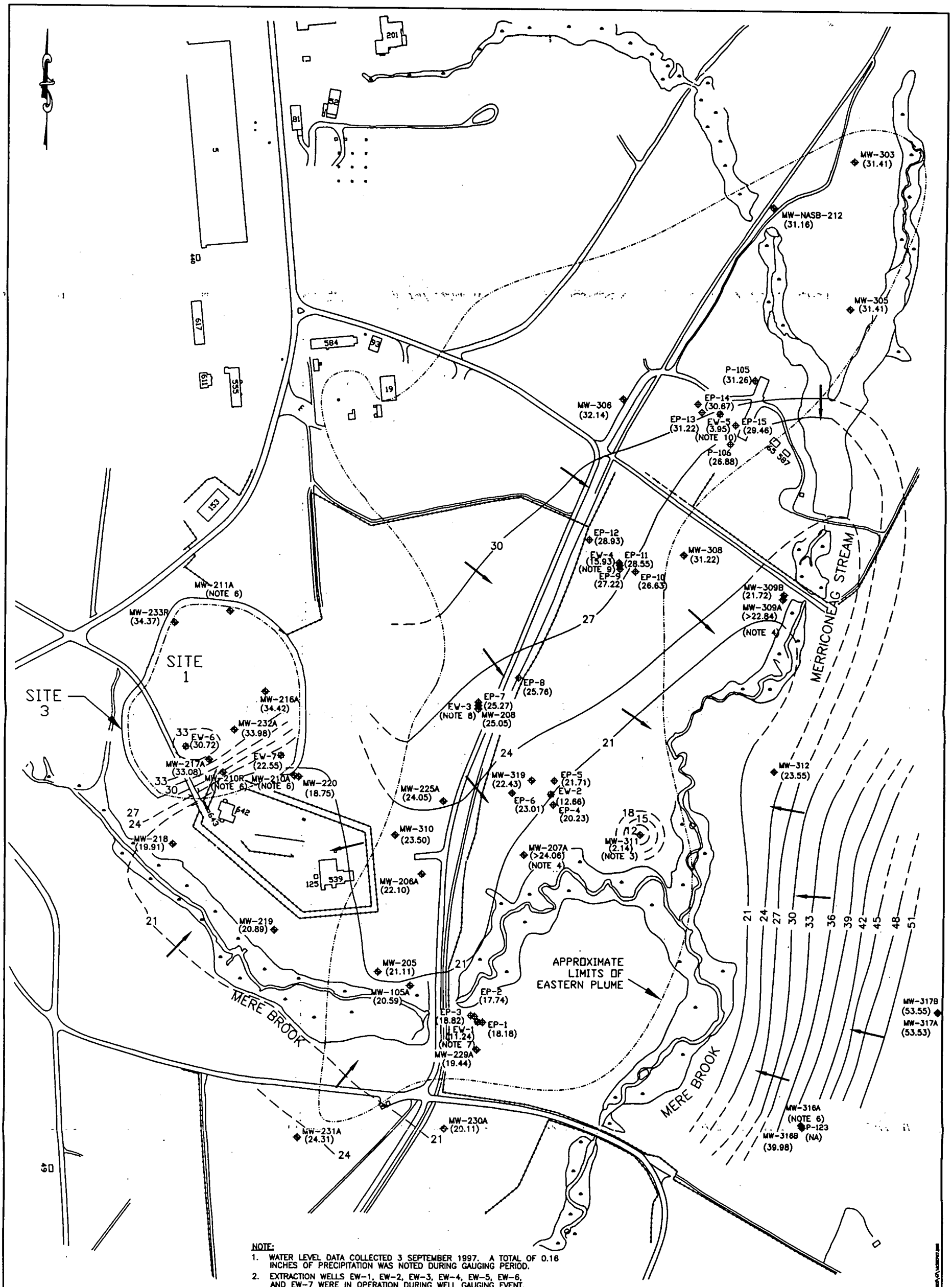

NOTE:

1. WATER LEVEL DATA COLLECTED 3 SEPTEMBER 1997. A TOTAL OF 0.16 INCHES OF PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. EXTRACTION WELLS EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
3. MONITORING WELL MW-311 WAS ACTIVELY PUMPING DUE TO PILOT TESTING DURING WELL GAUGING EVENT. THE 9, 6, AND 3 FT CONTOURS ENCOMPASS MW-311 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
4. MONITORING WELLS MW-207A AND MW-309A WERE ARTESIAN DURING WELL GAUGING EVENT.
5. CONTOUR INTERVAL = 3 FT.
6. DEEP BEDROCK WELL. WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
7. THE 18, 15, AND 12 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
8. THE 24, 21, 18, AND 15 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. THE 27, 24, 21, AND 18 FT CONTOURS ENCOMPASS EW-4 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. THE 27, 24, 21, 18, 15, 12, 9, AND 6 FT CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
11. ANOMALOUS WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.

LEGEND

- MW-209 (26.36) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (28.55) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- —24— GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 7
INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 3 SEPTEMBER 1997

DATE	25 MARCH 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	1&3SEP97
DRAWING NUMBER	–
SHEET NUMBER	–

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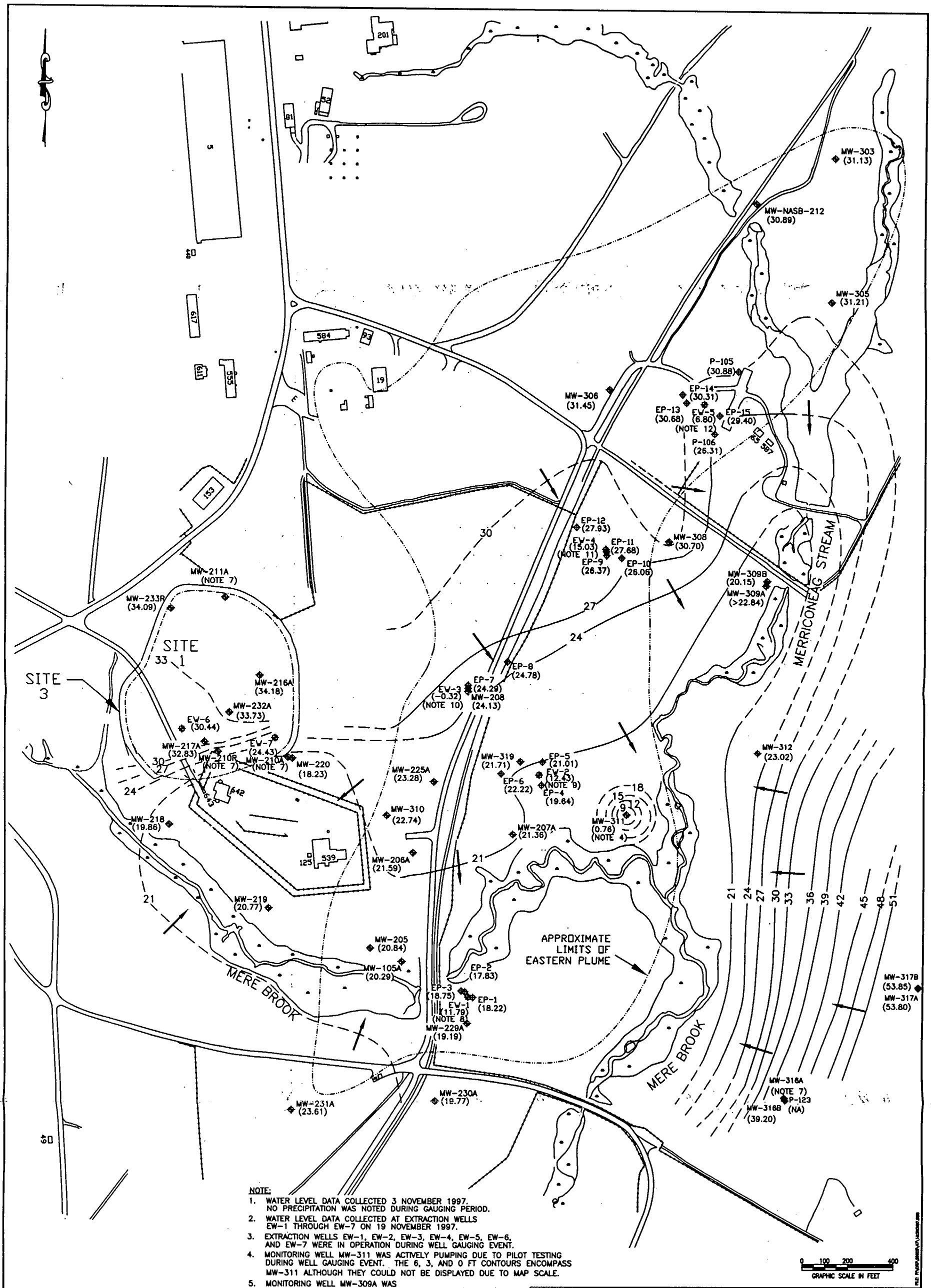

NOTE:

1. WATER LEVEL DATA COLLECTED 3 NOVEMBER 1997. NO PRECIPITATION WAS NOTED DURING GAUGING PERIOD.
2. WATER LEVEL DATA COLLECTED AT EXTRACTION WELLS EW-1 THROUGH EW-7 ON 19 NOVEMBER 1997.
3. EXTRACTION WELLS EW-1, EW-2, EW-3, EW-4, EW-5, EW-6, AND EW-7 WERE IN OPERATION DURING WELL GAUGING EVENT.
4. MONITORING WELL MW-311 WAS ACTIVELY PUMPING DUE TO PILOT TESTING DURING WELL GAUGING EVENT. THE 6, 3, AND 0 FT CONTOURS ENCOMPASS MW-311 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
5. MONITORING WELL MW-309A WAS ARTESIAN DURING WELL GAUGING EVENT.
6. CONTOUR INTERVAL = 3 FT.
7. DEEP BEDROCK WELL. WATER ELEVATION NOT USED DURING CONTOUR MAP GENERATION.
8. THE 18, 15, AND 12 FT CONTOURS ENCOMPASS EW-1 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
9. THE 18 AND 15 FT CONTOURS ENCOMPASS EW-2 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
10. THE 24, 21, 18, 15, 12, 9, 6, 3, AND 0 FT CONTOURS ENCOMPASS EW-3 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
11. THE 27, 24, 21, AND 18 FT CONTOURS ENCOMPASS EW-4 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.
12. THE 27, 24, 21, 18, 15, 12, AND 9 FT CONTOURS ENCOMPASS EW-5 ALTHOUGH THEY COULD NOT BE DISPLAYED DUE TO MAP SCALE.

LEGEND

- MW-209 (25.29) — MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 — EXTRACTION WELL
- EP-11 (27.68) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- —24— — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 8

INTERPRETED DEEP GROUND-WATER POTENTIOMETRIC SURFACE CONTOUR MAP, 3 NOVEMBER 1997

DATE	25 MARCH 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM

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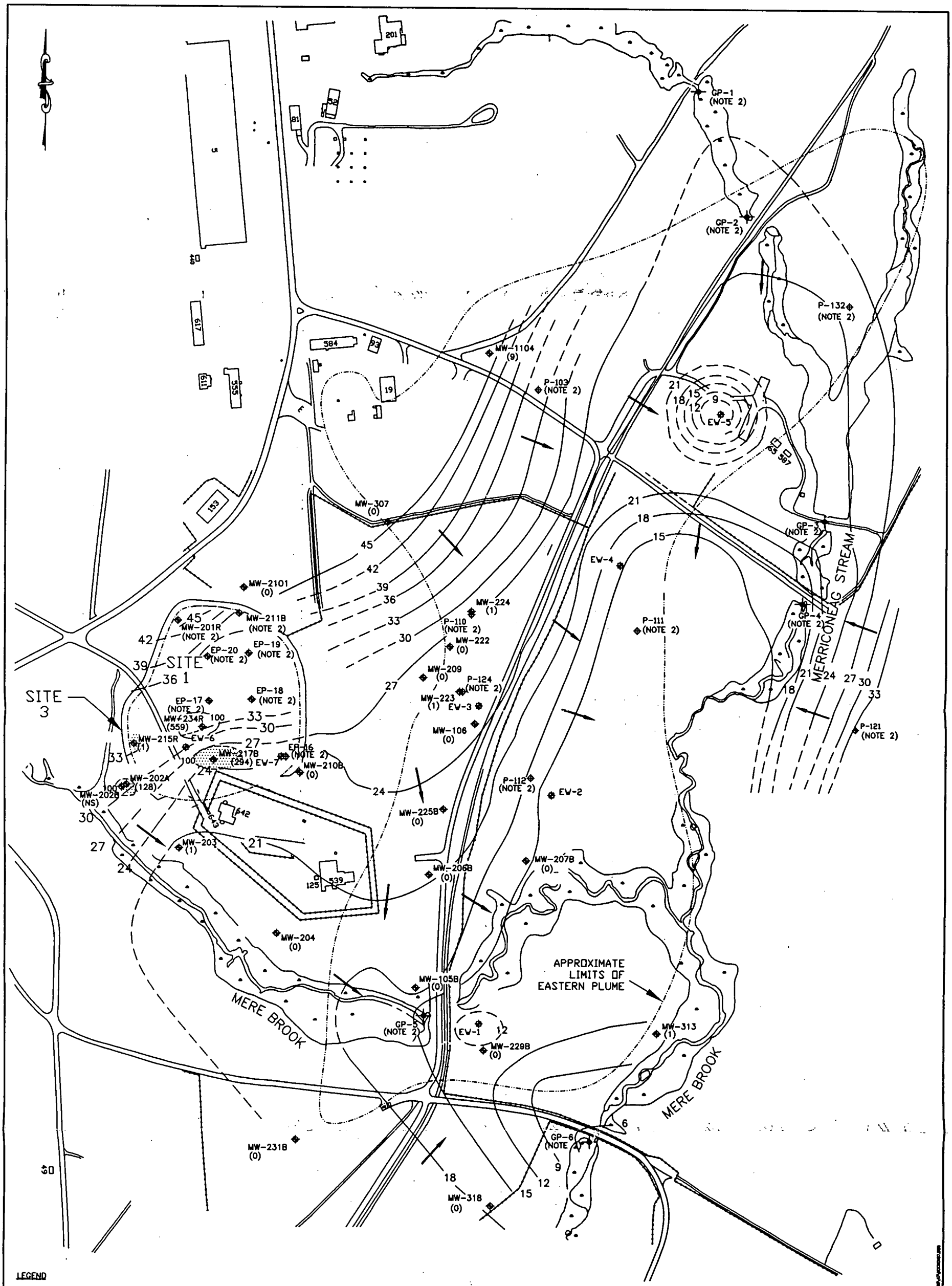
PROJECT NUMBER	29800.47
SCALE	1"=400'
FILE NAME	1&3NOV97
DRAWING NUMBER	-
SHEET NUMBER	-



LEGEND

- MW-209 (25.29) — MONITORING WELL (TOTAL VOC CONCENTRATION IN UG/L)
- (NA) — NOT AVAILABLE, RISER BLOCKED
- EW-1 — EXTRACTION WELL
- EP-11 (27.68) — PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- GP-5 (13.96) — SURFACE WATER GAUGING POINT (SURFACE WATER ELEVATION, FT MSL)
- 24 — GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3

- INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- 100 — 100 ug/L TOTAL VOC CONTOUR (DASHED WHERE INFERRED)

NOTE

1. GROUND-WATER SAMPLES COLLECTED FROM 5 TO 14 NOVEMBER 1997.
2. NOT SAMPLED AS PART OF LTMP, ONLY WATER LEVEL DATA COLLECTED.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 9
INTERPRETED TOTAL VOC CONTOUR MAP
SHALLOW WELLS, MONITORING EVENT 10

DATE	13 JANUARY 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	VOCNOV97
DRAWING NUMBER	-
SHEET NUMBER	-

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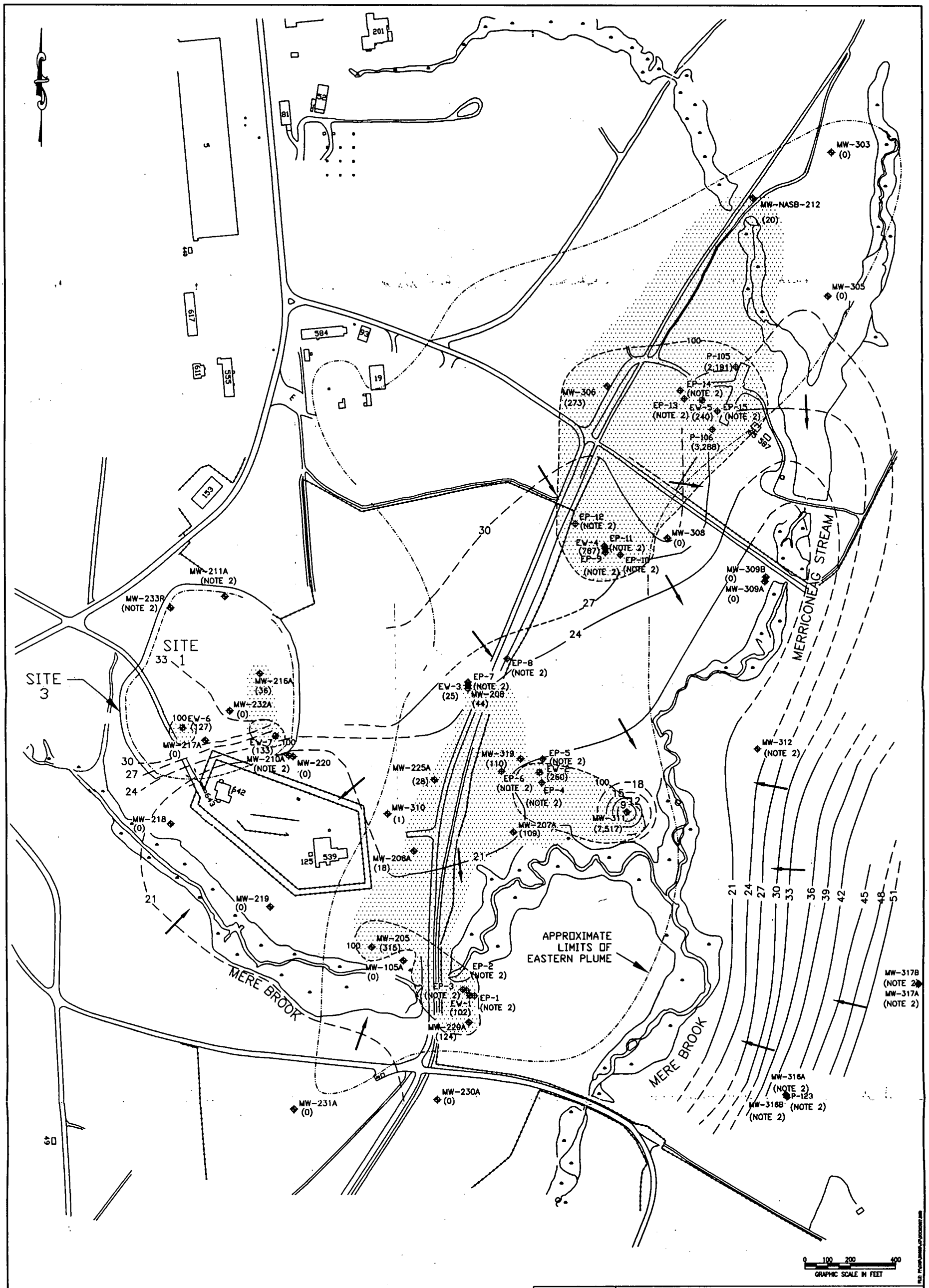

LEGEND

- MW-209 (25.29) MONITORING WELL (WATER TABLE ELEVATION, FT MSL)
- EW-1 EXTRACTION WELL
- EP-11 (27.66) PIEZOMETER (WATER TABLE ELEVATION, FT MSL)
- NS NOT SAMPLED
- —24— GROUND-WATER CONTOUR (FT MSL) (DASHED WHERE INFERRED)
- INFERRED GROUND-WATER FLOW DIRECTION
- APPROXIMATE LIMITS OF EASTERN PLUME
- APPROXIMATE LIMITS OF SLURRY WALL
- APPROXIMATE LIMITS OF SITES 1 & 3
- INFERRED AREA ABOVE STATE MEG/FEDERAL MCL CONCENTRATION
- 100 100 ug/L TOTAL VOC CONTOUR (DASHED WHERE INFERRED)

NOTE

1. GROUND-WATER SAMPLES COLLECTED FROM 4 TO 19 NOVEMBER 1997
2. NOT SAMPLED AS PART OF LTMP, ONLY WATER LEVEL DATA COLLECTED.

SITES 1 & 3 AND EASTERN PLUME

NAVAL AIR STATION, BRUNSWICK, MAINE

FIGURE 10
INTERPRETED TOTAL VOC CONTOUR MAP
DEEP WELLS, MONITORING EVENT 10

DATE	13 JANUARY 1998
DESIGNED BY	SY
DRAWN BY	SYC
CHECKED BY	PLN
PROJECT MANAGER	CEM
PROJECT NUMBER	29600.47
SCALE	1"=400'
FILE NAME	VOCNOV97
DRAWING NUMBER	–
SHEET NUMBER	–

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TABLE 1 SUMMARY OF LONG-TERM MONITORING PROGRAM AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Type/Location	Monitoring Frequency	Sample Parameters			Event 10	
		TCL VOC	TAL Elements	Field Parameters[a]	Gauged	Sampled
Monitoring Wells						
MW-202A	Tri-Annual	X	X	X	X	X
MW-202B	Tri-Annual	X	X	X	X	Well dry
MW-203	Tri-Annual	X	X	X	X	X
MW-204	Tri-Annual	X	X	X	X	X
MW-210B	Tri-Annual	X	X	X	X	X
MW-210R	Tri-Annual	X	X	X	X	X
MW-215R	Tri-Annual	X	X	X	X	X
MW-216A	Tri-Annual	X	X	X	X	X
MW-216B	Tri-Annual	X	X	X	Well abandoned	
MW-217A	Tri-Annual	X	X	X	X	X
MW-217B	Tri-Annual	X	X	X	X	X
MW-218	Tri-Annual	X	X	X	X	X
MW-219	Tri-Annual	X	X	X	X	X
MW-220	Tri-Annual	X	X	X	X	X
MW-232A	Tri-Annual	X	X	X	X	X
MW-234R	Tri-Annual	X	X	X	X	X
MW-2101	Tri-Annual	X	X	X	X	X
EW-6	Tri-Annual	X	X	X	X	X
EW-7	Tri-Annual	X	X	X	X	X
MW-201R	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-210A	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-211A	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-211B	Tri-Annual	NR	NR	X[b]	X[b]	NR
MW-233R	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-16	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-17	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-18	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-19	Tri-Annual	NR	NR	X[b]	X[b]	NR
EP-20	Tri-Annual	NR	NR	X[b]	X[b]	NR

(a) Determination of field parameters in accordance with EPA/600/4-79/020 using the following methods: pH (Method 150.1), temperature (Method 170.1), specific conductance (Method 180.1), and dissolved oxygen (Method 360.1). Includes water level measurement and Eh.
(b) Determination of water level only.

NOTE: TCL = Target Compound List; VOC = Volatile organic compounds (EPA SW-846); TAL = Target Analyte List; NR = Not required.

Sample Type/Location	Monitoring Frequency	Sample Parameters			Event 10	
		TCL VOC	TAL Elements	Field Parameters[a]	Gauged	Sampled
Leachate Station Seep						
SEEP-1	Tri-Annual	X	X	X	X[c]	X
SEEP-2	Tri-Annual	X	X	X	Seep dry	
SEEP-3	Tri-Annual	X	X	X	X[c]	X
SEEP-4	Tri-Annual	X	X	X	Seep dry	
SEEP-5	Tri-Annual	X	X	X	X[c]	X
Leachate Station Sediment						
LT-1	Tri-Annual	X	X	NR	NR	X
LT-2	Tri-Annual	X	X	NR	NR	X
LT-3	Tri-Annual	X	X	NR	NR	X
LT-4	Tri-Annual	X	X	NR	NR	X
LT-5	Tri-Annual	X	X	NR	NR	X
Surface Water						
SW-1	Tri-Annual	X	X	X	X[c]	X
SW-2	Tri-Annual	X	X	X	X[c]	X
SW-3	Tri-Annual	X	X	X	X[c]	X
SW-4	Tri-Annual	X	X	X	X[c]	X
SW-5	Tri-Annual	X	X	X	X[c]	X
SW-6	Tri-Annual	X	X	X	X[c]	X
SW-7	Tri-Annual	X	X	X	X[c]	X
Sediment						
SED-1	Tri-Annual	X	X	NR	NR	X
SED-2	Tri-Annual	X	X	NR	NR	X
SED-3	Tri-Annual	X	X	NR	NR	X
SED-4	Tri-Annual	X	X	NR	NR	X
SED-5	Tri-Annual	X	X	NR	NR	X
SED-6	Tri-Annual	X	X	NR	NR	X
SED-7	Tri-Annual	X	X	NR	NR	X

(c) Measurement of water quality indicator parameters only.

TABLE 2 SUMMARY OF LONG-TERM MONITORING PROGRAM AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 10	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Monitoring Wells					
MW-105 A	Tri-Annual	X	X	X	X
MW-105 B	Tri-Annual	X	X	X	X
MW-106	Tri-Annual	X	X	X	X
MW-205	Tri-Annual	X	X	X	X
MW-206 A	Tri-Annual	X	X	X	X
MW-206 B	Tri-Annual	X	X	X	X
MW-207 A	Tri-Annual	X	X	X	X
MW-207 B	Tri-Annual	X	X	X	X
MW-208	Tri-Annual	X	X	X	X
MW-209	Tri-Annual	X	X	X	X
MW-222	Tri-Annual	X	X	X	X
MW-223	Tri-Annual	X	X	X	X
MW-224	Tri-Annual	X	X	X	X
MW-225 A	Tri-Annual	X	X	X	X
MW-225 B	Tri-Annual	X	X	X	X
MW-229 A	Tri-Annual	X	X	X	X
MW-229 B	Tri-Annual	X	X	X	X
MW-230 A	Tri-Annual	X	X	X	X
MW-231A	Tri-Annual	X	X	X	X
MW-231B	Tri-Annual	X	X	X	X
MW-303	Tri-Annual	X	X	X	X
MW-305	Tri-Annual	X	X	X	X
MW-306	Tri-Annual	X	X	X	X
MW-307	Tri-Annual	X	X	X	X
MW-308	Tri-Annual	X	X	X	X

(a) Determination of field parameters in accordance with EPA/600/4-79/020 using the following methods: pH (Method 150.1), temperature (Method 170.1), specific conductance (Method 180.1), and dissolved oxygen (Method 360.1). Includes water level measurement and Eh.

NOTE: TCL = Target Compound List; VOC = Volatile organic compounds (EPA SW-846).

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 10	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Monitoring Wells (Continued)					
MW-309 A	Tri-Annual	X	X	X	X
MW-309 B	Tri-Annual	X	X	X	X
MW-310	Tri-Annual	X	X	X	X
MW-311	Tri-Annual	X	X	X	X
MW-312	Tri-Annual	NR	X[b]	X[b]	NR
MW-313	Tri-Annual	X	X	X	X
MW-316A	Tri-Annual	NR	X[b]	X[b]	NR
MW-316B	Tri-Annual	NR	X[b]	X[b]	NR
MW-317A	Tri-Annual	NR	X[b]	X[b]	NR
MW-317B	Tri-Annual	NR	X[b]	X[b]	NR
MW-318	Tri-Annual	X	X	X	X
MW-319	Tri-Annual	X	X	X	X
MW-1104	Tri-Annual	X	X	X	X
MW-NASB-212	Tri-Annual	X	X	X	X
P-Series Piezometers					
P-103	Tri-Annual	NR	X[b]	X[b]	NR
P-105	Tri-Annual	X	X	X	X
P-106	Tri-Annual	X	X	X	X
P-110	Tri-Annual	NR	X[b]	X[b]	NR
P-111	Tri-Annual	NR	X[b]	X[b]	NR
P-112	Tri-Annual	NR	X[b]	X[b]	NR
P-121	Tri-Annual	NR	X[b]	X[b]	NR
P-123	Tri-Annual	NR	X[b]	Gauging port obstructed	
P-124	Tri-Annual	NR	X[b]	X[b]	NR
P-132	Tri-Annual	NR	X[b]	X[b]	NR

(b) Determination of water level only.

NOTE: Piezometers P-104 and P-107 were removed from the Long-Term Monitoring Program effective July 1995. Piezometers P-110, P-111, and P-132 were removed effective November 1996.
NR = Not required.

Sample Type/Location	Monitoring Frequency	Sample Parameters		Event 10	
		TCL VOC	Field Parameters[a]	Gauged	Sampled
Extraction Wells					
EW-1	Tri-Annual	X	X	X	X
EW-2	Tri-Annual	X	X	X	X
EW-3	Tri-Annual	X	X	X	X
EW-4	Tri-Annual	X	X	X	X
EW-5	Tri-Annual	X	X	X	X
EP-Series Piezometers					
EP-1	Tri-Annual	NR	X[b]	X[b]	NR
EP-2	Tri-Annual	NR	X[b]	X[b]	NR
EP-3	Tri-Annual	NR	X[b]	X[b]	NR
EP-4	Tri-Annual	NR	X[b]	X[b]	NR
EP-5	Tri-Annual	NR	X[b]	X[b]	NR
EP-6	Tri-Annual	NR	X[b]	X[b]	NR
EP-7	Tri-Annual	NR	X[b]	X[b]	NR
EP-8	Tri-Annual	NR	X[b]	X[b]	NR
EP-9	Tri-Annual	NR	X[b]	X[b]	NR
EP-10	Tri-Annual	NR	X[b]	X[b]	NR
EP-11	Tri-Annual	NR	X[b]	X[b]	NR
EP-12	Tri-Annual	NR	X[b]	X[b]	NR
EP-13	Tri-Annual	NR	X[b]	X[b]	NR
EP-14	Tri-Annual	NR	X[b]	X[b]	NR
EP-15	Tri-Annual	NR	X[b]	X[b]	NR
Surface Water					
GP-1	Tri-Annual	NR	X[b]	X[b]	NR
GP-2	Tri-Annual	NR	X[b]	X[b]	NR
GP-3	Tri-Annual	NR	X[b]	X[b]	NR
GP-4	Tri-Annual	NR	X[b]	X[b]	NR
GP-5	Tri-Annual	NR	X[b]	X[b]	NR
GP-6	Tri-Annual	NR	X[b]	X[b]	NR

TABLE 3 MONITORING WELL GAUGING SUMMARY, SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (3 September 1997)		Event 10 Gauging Data (3 November 1997)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells						
MW-201 R	58.88	39.51	12.04	46.84	12.60	46.28
MW-202 A	52.40	31.09	21.63	30.77	21.63	30.77
MW-202 B	53.04	17.93	Well dry	---	Well dry	---
MW-203	52.75	42.04	32.12	20.63	32.27	20.48
MW-204	50.50	37.18	30.15	20.35	30.35	20.15
MW-210 A	52.17	105.60	19.65	32.52	20.20	31.97
MW-210 B	54.72	26.40	31.27	23.45	31.65	23.07
MW-210 R	55.90	107.50	22.55	33.35	23.00	32.90
MW-211 A	65.59	137.02	25.45	40.14	26.00	39.59
MW-211 B	65.44	36.50	27.78	37.66	28.18	37.26
MW-215 R	62.26	49.95	28.60	33.66	28.88	33.38
MW-216 A	71.17	46.96	36.75	34.42	36.99	34.18
MW-217 A	61.78	44.56	28.70	33.08	28.95	32.83
MW-217 B	61.25	34.60	26.76	34.49	26.20	35.05
MW-218	54.16	53.54	34.25	19.91	34.30	19.86
MW-219	51.87	71.82	30.98	20.89	31.10	20.77
MW-220	47.20	49.87	28.45	18.75	28.97	18.23
MW-232 A	71.18	54.76	37.20	33.98	37.45	33.73
MW-233	63.94	50.49	29.57	34.37	29.85	34.09
MW-234 R	68.55	59.52	34.57	33.98	34.80	33.75
MW-2101	61.05	30.00	13.24	47.81	13.92	47.13
Extraction Wells						
EW-6	57.74	39.05	27.02	30.72	27.30	30.44
EW-7	51.13	50.55	28.58	22.55	26.70	24.43
EP Series Piezometers						
EP-16	58.92	49.90	35.02	23.90	35.58	23.34
EP-17	69.73	43.00	35.37	34.36	35.60	34.13
EP-18	68.58	39.00	34.17	34.41	34.40	34.18
EP-19	68.22	47.00	33.83	34.39	33.99	34.23
EP-20	69.55	47.00	34.77	34.78	35.00	34.55

NOTE: MSL = Mean sea level.
Dashes (---) indicate data cannot be calculated because well was dry.

TABLE 4 MONITORING WELL GAUGING SUMMARY
EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (3 September 1997)		Event 10 Gauging Data (3 November 1997)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells						
MW-105 A	24.19	46.87	3.60	20.59	3.90	20.29
MW-105 B	24.55	22.91	9.15	15.40	6.35	18.20
MW-106	51.26	37.27	26.10	25.16	27.07	24.19
MW-205	45.99	78.77	24.88	21.11	25.15	20.84
MW-206 A	43.02	74.36	20.92	22.10	21.43	21.59
MW-206 B	42.77	27.17	20.75	22.02	21.50	21.27
MW-207 A	24.06	73.22	Artesian	>24.06	2.70	21.36
MW-207 B	22.90	9.57	8.03	14.87	7.75	15.15
MW-208	49.40	103.33	24.35	25.05	25.27	24.13
MW-209	54.84	32.38	28.48	26.36	29.55	25.29
MW-222	57.43	45.34	30.28	27.15	31.25	26.18
MW-223	53.71	42.61	28.00	25.71	28.99	24.72
MW-224	57.63	46.95	29.43	28.20	30.60	27.03
MW-225 A	45.95	76.03	21.90	24.05	22.67	23.28
MW-225 B	46.25	42.00	22.83	23.42	23.72	22.53
MW-229 A	33.83	64.97	14.39	19.44	14.64	19.19
MW-229 B	30.08	32.70	16.17	13.91	16.59	13.49
MW-230 A	36.32	82.08	16.21	20.11	16.55	19.77
MW-231 A	45.41	62.42	21.10	24.31	21.80	23.61
MW-231 B	46.31	57.86	25.27	21.04	25.80	20.51
MW-303	44.28	71.62	12.87	31.41	13.15	31.13
MW-305	43.09	54.12	11.68	31.41	11.88	31.21
MW-306	52.12	56.98	19.98	32.14	20.67	31.45
MW-307	62.70	22.21	16.97	45.73	17.63	45.07
MW-308	37.70	72.85	6.48	31.22	7.00	30.70
MW-309 A	22.84	72.71	Artesian	>22.84	Artesian	>22.84
MW-309 B	22.32	59.43	0.60	21.72	2.17	20.15

NOTE: MSL = Mean sea level.

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (3 September 1997)		Event 10 Gauging Data (3 November 1997)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
Monitoring Wells (Continued)						
MW-310	53.39	72.83	29.89	23.50	30.65	22.74
MW-311	21.48	55.78	19.34	2.14	20.72	0.76
MW-312	35.97	71.15	12.42	23.55	12.95	23.02
MW-313	21.39	37.14	9.80	11.59	9.57	11.82
MW-316A	53.71	103.10	23.20	30.51	23.80	29.91
MW-316B	54.40	57.85	14.42	39.98	15.20	39.20
MW-317A	71.35	120.79	17.82	53.53	17.55	53.80
MW-317B	70.10	96.95	16.55	53.55	16.25	53.85
MW-318	24.28	25.14	7.42	16.86	6.99	17.29
MW-319	40.16	72.44	17.73	22.43	18.45	21.71
MW-1104	60.09	27.55	13.63	46.46	13.73	46.36
MW-NASB-212	41.64	67.34	10.48	31.16	10.75	30.89
P-Series Piezometers						
P-103	60.35	29.05	25.82	34.53	25.70	34.65
P-105	42.08	70.35	10.82	31.26	11.20	30.88
P-106	38.83	71.06	11.95	26.88	12.52	26.31
P-110	56.70	24.14	Dry	---	Dry	---
P-111	31.48	9.99	6.32	25.16	Dry	---
P-112	41.12	16.41	13.30	27.82	12.57	28.55
P-121	50.78	17.35	15.85	34.93	16.33	34.55
P-123	54.19	Blocked	Blocked	---	Blocked	---
P-124	51.12	23.25	Dry	---	Dry	---
P-132	42.95	32.46	18.43	24.52	18.36	24.59
Extraction Wells						
EW-1	25.34	99.66	14.10	11.24	13.55	11.79
EW-2	31.63	90.86	18.97	12.66	19.20	12.43
EW-3	41.18	67.04	28.60	12.58	41.50	-0.32
EW-4	37.13	69.37	21.20	15.93	22.10	15.03
EW-5	36.25	84.99	32.30	3.95	29.45	6.80

NOTE: Dashes (---) indicate data cannot be calculated because well frozen, blocked, or dry.

Well Designation	Well Riser Elevation (ft MSL)	Depth to Well Bottom (ft below top of well riser)	Bi-Monthly Gauging Data (3 September 1997)		Event 10 Gauging Data (3 November 1997)	
			Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)	Depth to Water (ft below top of well riser)	Ground-Water Elevation (ft MSL)
EP-Series Piezometers						
EP-1	31.67	100.51	13.49	18.18	13.45	18.22
EP-2	29.74	99.00	12.00	17.74	11.91	17.83
EP-3	27.91	89.21	9.09	18.82	9.16	18.75
EP-4	32.59	91.11	12.36	20.23	12.95	19.64
EP-5	34.61	79.85	12.90	21.71	13.60	21.01
EP-6	40.14	83.51	17.13	23.01	17.92	22.22
EP-7	48.49	70.20	23.22	25.27	24.20	24.29
EP-8	47.31	80.38	21.55	25.76	22.53	24.78
EP-9	37.84	62.46	10.62	27.22	11.47	26.37
EP-10	37.78	58.00	11.15	26.63	11.72	26.06
EP-11	41.59	65.03	13.04	28.55	13.91	27.68
EP-12	49.38	69.61	20.45	28.93	21.45	27.93
EP-13	38.96	71.03	7.74	31.22	8.28	30.68
EP-14	43.46	80.05	12.79	30.67	13.15	30.31
EP-15	45.37	82.68	15.91	29.46	15.97	29.40

Surface Water Gauging Stations					
Well Designation	Gauging Point Elevation (ft MSL)	Bi-Monthly Gauging Data (3 September 1997)		Event 10 Gauging Data (3 November 1997)	
		Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)	Depth to Water (ft below gauging point)	Surface Water Elevation (ft MSL)
GP-1	31.10	3.14	27.96	2.95	28.15
GP-2	28.95	2.40	26.55	3.40	25.55
GP-3	27.33	3.75	23.58	3.60	23.73
GP-4	18.39	2.60	15.79	2.00	16.39
GP-5	23.38	9.90	13.48	9.42	13.96
GP-6	15.22	10.60	4.62	9.60	5.62

TABLE 5 SUMMARY OF GROUND-WATER EXTRACTION RATE AT INDIVIDUAL WELLS FOR THE PERIOD 1 AUGUST THROUGH 30 NOVEMBER 1997, SITES 1 AND 3 AND EASTERN PLUME NAVAL AIR STATION, BRUNSWICK, MAINE

	Date																				
	8/01	8/04	8/05	8/06	8/07	8/08	8/11	8/12	8/13	8/14	8/15	8/18	8/19	8/20	8/21	8/22	8/25	8/26	8/27	8/28	8/29
EW-1																					
Flow rate (gpm)	15.4	15.1	15.1	15.1	14.7	15.1	14.9	15.1	15.2	14.7	14.3	14.9	14.6	14.9	14.9	16.2	14.1	15.2	14.7	15.6	13.5
Run time (hours)	24.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-2																					
Flow rate (gpm)	28.0	27.5	27.4	27.4	26.7	27.5	27.1	27.4	27.7	26.7	25.9	27.1	26.5	27.0	27.0	29.5	25.6	27.6	26.6	28.3	24.6
Run time (hours)	24.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-3																					
Flow rate (gpm)	29.2	28.7	28.6	28.5	27.9	28.6	28.2	28.6	28.9	27.9	27.0	28.3	27.7	28.2	28.2	30.7	26.7	28.7	27.8	29.6	25.6
Run time (hours)	24.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-4																					
Flow rate (gpm)	20.2	19.9	19.8	19.8	19.3	19.8	19.6	19.8	20.0	19.3	18.7	19.6	19.1	19.5	19.5	21.3	18.5	19.9	19.2	20.5	17.7
Run time (hours)	24.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-5																					
Flow rate (gpm)	11.4	11.2	11.2	11.1	10.9	11.2	11.0	11.1	11.2	10.9	10.5	11.0	10.8	11.0	11.0	12.0	10.4	11.2	10.8	11.5	10.0
Run time (hours)	24.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-6																					
Flow rate (gpm)	1.02	1.12	0.89	0.95	1.05	1.04	1.00	0.99	0.92	0.80	0.76	0.78	0.75	0.76	0.74	0.82	0.51	0.62	0.56	0.55	0.47
Run time (hours)	10.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0
EW-7																					
Flow rate (gpm)	1.6	1.7	1.3	1.4	1.6	1.6	1.5	1.5	1.4	1.2	1.1	1.2	1.1	1.2	1.1	1.2	0.8	0.9	0.8	0.8	0.7
Run time (hours)	10.0	24.0	24.0	24.0	23.8	24.0	24.0	22.5	24.0	24.0	24.0	24.0	24.0	24.0	24.0	21.0	24.0	22.7	24.0	24.0	24.0

	Date																				
	9/02	9/03	9/04	9/05	9/08	9/09	9/10	9/11	9/12	9/15	9/16	9/17	9/18	9/19	9/22	9/23	9/24	9/25	9/26	9/29	9/30
EW-1																					
Flow rate (gpm)	14.3	15.3	13.6	14.4	14.5	14.3	14.3	14.5	14.5	13.4	14.6	13.9	14.9	13.4	14.4	14.2	13.5	14.6	13.5	12.3	14.1
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-2																					
Flow rate (gpm)	26.0	27.8	24.7	26.2	26.4	26.0	26.0	26.4	26.4	24.3	26.5	25.2	27.0	24.4	26.2	25.9	24.5	26.5	24.6	22.4	25.5
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-3																					
Flow rate (gpm)	27.1	29.0	25.8	27.3	27.5	27.1	27.1	27.5	27.5	25.3	27.6	26.2	28.1	25.5	27.3	27.0	25.6	27.6	25.7	23.3	26.6
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-4																					
Flow rate (gpm)	18.7	20.0	17.9	18.9	19.1	18.8	18.8	19.1	19.1	17.5	19.1	18.2	19.5	17.6	18.9	18.7	17.7	19.1	17.8	16.1	18.4
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-5																					
Flow rate (gpm)	10.6	11.3	10.0	10.6	10.7	10.6	10.6	10.7	10.7	9.9	10.8	10.2	11.0	9.9	10.6	10.5	10.0	10.8	10.0	9.1	10.4
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-6																					
Flow rate (gpm)	0.54	0.57	0.65	0.62	0.43	0.38	0.44	0.55	0.59	0.64	0.66	0.61	0.60	0.91	0.90	0.85	0.76	0.80	0.73	0.73	0.99
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0
EW-7																					
Flow rate (gpm)	0.8	0.9	1.0	0.9	0.7	0.6	0.7	0.8	0.9	1.0	1.0	0.9	0.9	1.4	1.4	1.3	1.2	1.2	1.1	1.1	1.5
Run time (hours)	22.0	24.0	24.0	22.8	24.0	24.0	24.0	24.0	24.0	22.3	24.0	24.0	24.0	23.0	24.0	24.0	24.0	24.0	24.0	14.8	24.0

	Date																						
	10/01	10/02	10/03	10/06	10/07	10/08	10/09	10/10	10/13	10/14	10/15	10/16	10/17	10/20	10/21	10/22	10/23	10/24	10/27	10/28	10/29	10/30	10/31
EW-1																							
Flow rate (gpm)	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0	12.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0
EW-2																							
Flow rate (gpm)	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0	25.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0
EW-3																							
Flow rate (gpm)	24.6	29.4	21.3	26.2	25.7	23.5	25.9	22.6	24.2	22.2	21.5	24.9	22.8	22.2	24.2	20.1	20.7	26.7	20.4	11.7	14.7	22.9	20.8
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0
EW-4																							
Flow rate (gpm)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0
EW-5																							
Flow rate (gpm)	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0
EW-6																							
Flow rate (gpm)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Run time (hours)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EW-7																							
Flow rate (gpm)	2.2	2.2	1.9	1.8	1.7	1.6	2.1	1.2	1.6	1.6	1.6	1.6	1.6	1.5	1.4	0.4	0.6	0.2	1.4	1.3	0.8	1.4	1.2
Run time (hours)	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	2.5	21.5	24.0	24.0

	Date																			
	11/1	11/4	11/5	11/6	11/7	11/8	11/11	11/12	11/13	11/14	11/15	11/18	11/19	11/20	11/21	11/22	11/25	11/26	11/27	11/29
EW-1																				
Flow Rate (gpm)	19.7	18.3	19.3	18.7	18.1	18.1	18.4	18.5	18.3	18.3	18.6	18.4	18.3	15.9	23.6	13.4	13.9	13.8	6.3	12.9
Run Time (hours)	24	24	24	24	23	24	24	24	24	24	24	24	24	24	24	24	24	24	17.8	24
EW-2																				
Flow Rate (gpm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run Time (hours)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
EW-3																				
Flow Rate (gpm)	28.2	26.1	27.6	26.8	25.8	25.8	26.3	26.4	26.2	26.2	26.6	26.3	26.1	22.7	33.7	19.1	19.8	19.8	8.9	18.4
Run Time (hours)	24	24	24	24	23	24	24	24	24	24	24	24	24	24	24	24	24	24	17.8	24
EW-4																				
Flow Rate (gpm)	19.3	17.9	18.9	18.4	17.7	17.7	18.1	18.1	18.0	18.0	18.2	18.0	18.0	15.6	23.1	13.1	13.6	13.6	0.0	12.6
Run Time (hours)	24	24	24	24	23	24	24	24	24	24	24	24	24	24	24	24	24	24	0	24
EW-5																				
Flow Rate (gpm)	25.5	23.6	25.0	24.2	23.4	23.4	23.9	23.9	23.7	23.7	24.1	23.8	23.7	20.6	0.0	0.0	0.0	0.0	0.0	0.0
Run Time (hours)	24	24	24	24	23	24	24	24	24	24	24	24	24	24	0	0	0	0	0	0
EW-6																				
Flow Rate (gpm)	1.8	1.9	1.8	2.4	1.6	2.2	2.2	1.9	1.8	1.8	1.8	1.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run Time (hours)	8	8	8	8	8	8	8	8	8	8	8	8	3	0	0	0	0	0	0	0
EW-7																				
Flow Rate (gpm)	2.6	2.8	2.6	3.5	2.3	3.2	3.1	2.8	2.6	2.6	2.6	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Run Time (hours)	8	8	8	8	8	8	8	8	8	8	8	8	3	0	0	0	0	0	0	0

TABLE 6 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Monitoring Wells						
MW-202 A	5.99	19.4	764	0.78	19	110
MW-202 B			Well dry; no data			
MW-203	5.88	15.0	686	7.39	4	192
MW-204	6.12	13.3	62	8.49	8	343
MW-210 B	5.96	14.2	98	0.38	9	47
MW-210R	8.20	12.0	1,502	0.15	6	-138
MW-215 R	5.20	13.1	208	0.22	2	283
MW-216 A	5.79	14.0	368	0.33	2	230
MW-217 A	6.39	16.7	772	0.45	27	193
MW-217 B	6.35	16.4	3,374	0.38	323	-87
MW-218	7.85	16.9	1,044	1.63	22	-19
MW-219	6.04	11.8	96	7.95	7	208
MW-220	6.50	13.1	186	4.24	17	88
MW-232 A	5.99	14.5	320	1.87	0	312
MW-234 R	5.77	14.3	230	0.42	(a)	103
MW-2101	5.60	16.1	248	5.81	(a)	190

(a) Turbidity probe not functioning properly due to equipment malfunction. No visible turbidity at time of sampling.

NOTE: NTU = Nephelometric turbidity unit.

TABLE 7 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN GROUND-WATER SAMPLES COLLECTED AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Monitoring Wells						
MW-105 A	6.79	7.1	60	10.11	4	350
MW-105 B	6.61	12.8	100	8.48	1	86
MW-106	5.57	10.1	32	10.43	0	425
MW-205	7.02	10.5	144	3.05	35	44
MW-206 A	5.89	9.5	122	6.47	1	393
MW-206 B	5.64	15.9	81	10.03	4	239
MW-207 A	6.45	8.1	226	0.18	209	278
MW-207 B	7.64	7.5	104	0.77	14	304
MW-208	7.89	8.9	84	0.31	35	23
MW-209	5.82	9.4	45	10.89	31	253
MW-222	5.94	9.8	50	10.74	7	266
MW-223	5.93	11.5	56	11.91	2	142
MW-224	5.57	12.6	74	10.67	-6	222
MW-225 A	6.12	10.1	87	6.98	8	227
MW-225 B	5.54	12.7	52	9.79	2	401
MW-229 A	5.86	10.8	48	8.47	4	399
MW-229 B	7.20	9.2	76	7.72	4	187
MW-230 A	7.71	8.3	69	0.33	33	-135
MW-231 A	6.42	11.2	56	7.41	109	390
MW-231 B	6.38	11.2	51	10.79	3	227
MW-303	7.83	9.0	175	0.39	1	-136
MW-305	8.82	10.2	152	0.13	196	-183
MW-306	6.08	12.1	66	7.87	22	218
MW-307	5.92	11.1	108	7.76	1,356	248
MW-308	8.67	9.5	588	0.17	2	-187
MW-309 A	8.77	8.7	226	0.06	0	-189
MW-309 B	8.76	8.0	232	0.21	0	275
MW-310	6.36	9.9	72	9.36	3	116
MW-311	6.60	8.3	103	1.72	7	194
MW-313	7.70	12.6	195	0.42	28	-149
MW-318	6.18	13.1	45	5.68	0	151
MW-319	6.30	8.4	136	3.52	0	197
MW-1104	5.91	17.3	84	0.20	3	97
MW-NASB-212	6.65	10.7	136	0.24	2	67
P-Series Piezometers						
P-105	7.41	6.5	84	5.50	48	178
P-106	7.02	7.0	128	2.31	20	325

NOTE: NTU = Nephelometric turbidity unit.

TABLE 8 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN SURFACE WATER AND SEEP SAMPLES COLLECTED ON 6 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Sample Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Surface Water						
SW- 01	6.13	8.4	190	2.37	227	90
SW-02	6.42	7.3	301	5.74	1	86
SW-03	6.60	6.7	297	7.11	923	192
SW-04	6.60	7.3	85	10.51	48	74
SW-05	6.73	7.5	96	9.74	61	124
SW-06	6.73	7.3	83	10.69	6	136
SW-07	6.84	6.9	84	7.50	268	68
Seeps						
SEEP-01	5.55	9.1	530	9.50	1	165
SEEP-02	Could not sample; dry					
SEEP-03	6.90	7.2	557	0.86	1,345	7
SEEP-04	Could not sample; dry					
SEEP-05	6.40	8.7	457	3.11	>1,000	-22

NOTE: NTU = Nephelometric turbidity unit.

TABLE 9 SUMMARY OF WATER QUALITY INDICATOR PARAMETERS MEASURED IN WATER SAMPLES COLLECTED FROM EXTRACTION WELLS AND THE TREATMENT PLANT AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Well Designation	pH	Temperature (°C)	Conductivity (μmhos/cm)	Dissolved Oxygen (mg/L)	Turbidity (NTU)	Eh (mV)
Extraction Wells						
EW-1	6.80	5.9	120	8.63	187	-29
EW-2	6.86	6.6	107	6.81	7	52
EW-3	7.17	6.8	85	9.62	1	113
EW-4	7.25	6.2	93	9.06	110	130
EW-5	7.35	6.6	69	8.12	146	133
EW-6	6.10	12.9	757	3.46	146	-24
EW-7	6.12	11.1	773	6.00	73	-29
Ground-Water Treatment Plant						
Sites 1 and 3 Influent	6.04	10.3	167	10.71	111	309
Eastern Plume Raw Influent	6.82	9.1	104	9.83	2	333
Combined Effluent	6.82	11.1	121	10.14	0	343

NOTE: NTU = Nephelometric turbidity unit.

TABLE 10 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 5-7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	MW-202A	MW-203	MW-204	MW-210B	MW-210R	MW-215R	MW-216A	MW-217A	MW-217B	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
1,1-Dichloroethane	6	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.8J	70	---
Total 1,2-Dichloroethene	1	0.3J	(<1U)	(<1U)	(<1U)	(<1U)	3	(<1U)	14	70	70
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	2	(<1U)	6	5	5
Chlorobenzene	0.3J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	13	(<1U)	3	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**0.5J**	**11**	(<1U)	**100D**	0.15	2.0
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.9J	600	10,000
1,1,2,2-Tetrachloroethane	25	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.8J	5	5
1,1,1-Trichloroethane	86D	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	130D	600	600
1,4-Dichlorobenzene	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	(<1U)	19	27	75
Tetrachloroethene	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Chloroform	0.4J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**18**	5	5
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	---	---

(a) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Revised Maximum Exposure Guidelines, memorandum dated 23 October 1992. Dashes (---) indicate no MEG applicable.
(b) MCL (Maximum Contamination Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1994). Dashes (---) indicate no MCL applicable.

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
D = Analysis at a secondary dilution factor.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Results in bold indicate concentrations above primary Federal MCL and/or State MEG.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	MW-202A	MW-203	MW-204	MW-210B	MW-210R	MW-215R	MW-216A	MW-217A	MW-217B	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)											
Aluminum	147B*	110B*	471	206	280	(<56.0U)	102B*	544	1,410	1,430	50-200[c]
Antimony	**2.9B***	(<1.0U)	2.0B*	(<1.0U)	2.3B*	(<1.0U)	2.8B*	(<1.0U)	2.0B*	2.8	6
Arsenic	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	6.9B*	(<2.0U)	(<2.0U)	(<2.0U)	18.6	---	50
Barium	72.3B*	31.3B*	6.0B*	11.4B*	24.0B*	10.7B*	8.0B*	30.4B*	161B*	1,500	2,000
Cadmium	(<0.60U)	(<0.60U)	0.78B*	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	5	5
Calcium	118,000	84,300	3,870	9,990	11,100	7,980	27,600	32,600	206,000	---	---
Chromium	6.2B*	(<4.0U)	72.9	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	7.4B*	10.9	100	100
Cobalt	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	14.3B*	(<7.0U)	8.2B*	---	---
Copper	(<5.0U)	(<5.0U)	43.2	(<5.0U)	60.8	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	---	1,300[d]
Iron	36,900	(<52.0U)	1,230	1,090	435	(<52.0U)	156	950	29,600	---	300[c]
Lead	1.1B*	1.0B*	1.4B*	(<1.0U)	1.8B*	1.8B*	(<1.0U)	(<1.0U)	1.5B*	---	15[d]
Magnesium	15,100	22,700	1,320	1,380	4,060	1,580	7,650	13,500	75,700	---	---
Manganese	**2,620**	32.6	45.2	**827**	19.6	**1,160**	**2,090**	10.7B*	**4,370**	200	50[c]
Nickel	14.7B*	(<5.0U)	48.8	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	13.0B*	100	100
Potassium	3,590	3,900	612B*	2,380	8,330B*	964B*	1,910	2,480	5,760B*	---	---
Sodium	23,000	29,800	5,580	4,180	291,000	17,000	15,600	70,200	353,000	---	---
Zinc	15.0B*	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	---	5,000[c]

(c) Secondary MCL, based on taste, odor, or color.
(d) Action level.

NOTE: B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

Analyte	MW-218	MW-219	MW-219 DUP	MW-220	MW-232A	MW-232A DUP	MW-234R	MW-2101	QT-002	MEG[a]	MCL[b]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	47	100
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	700	700
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.15	2
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	10,000
1,1,2,2-Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	600	600
1,4-Dichlorobenzene	0.5J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	27	75
Tetrachloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Acetone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	29	(<5U)	(<5U)	---	---
2-Butanone	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)	530D	(<5U)	(<5U)	---	---

NOTE: QT = Trip blank.

Analyte	MW-218	MW-219	MW-219 DUP	MW-220	MW-232A	MW-232A DUP	MW-234R	MW-2101	QT-002	MEG[a]	MCL[b]
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (µg/L)											
Aluminum	1,110	230	376	282	62.6B*	87.0B*	(<56.0U)	142B*	NR	1,430	50-200[c]
Antimony	(<1.0U)	2.2B*	2.6B*	1.2B*	(<1.0U)	(<1.0U)	(<1.0U)	1.6B*	NR	2.8	6
Arsenic	**154**	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	(<2.0U)	3.7B*	NR	---	50
Barium	6.0B*	5.4B*	(<4.0U)	5.0B*	21.5B*	25.7B*	6.4B*	37.8B*	NR	1,500	2,000
Cadmium	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	NR	5	5
Calcium	12,000	9,230	9,110	11,200	36,300	41,100	8,330	25,000	NR	---	---
Chromium	69.8	(<4.0U)	5.9B*	8.6B*	8.3B*	14.4	(<4.0U)	(<4.0U)	NR	100	100
Cobalt	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	NR	---	---
Copper	246	125	(<5.0U)	40.5	23.6	92.8	(<5.0U)	(<5.0U)	NR	---	1,300[d]
Iron	5,230	403	676	521	116	183	55.0B*	387	NR	---	300[c]
Lead	2.0B*	(<1.0U)	3.3	(<1.0U)	(<1.0U)	1.0B*	1.2B*	1.1B*	NR	---	15[d]
Magnesium	6,880	3,130	3,210	5,040	16,500	18,700	2,400	5,970	NR	---	---
Manganese	**663**	(<8.0U)	(<8.0U)	38.0	8.6B*	11.1B*	119	15.6	NR	200	50[c]
Nickel	41.2	(<5.0U)	10.8B*	(<5.0U)	10.8B*	22.4B*	(<5.0U)	(<5.0U)	NR	100	100
Potassium	8,230	1,140	1,370	1,800	2,970	3,280	1,080	2,960	NR	---	---
Sodium	227,000	7,130	7,610	19,100	45,400	50,800	32,600	7,770	NR	---	---
Zinc	21.4	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	12.3B*	(<12.0U)	(<12.0U)	NR	---	5,000[c]

NOTE: NR = Analysis not required.

TABLE 11 SUMMARY OF ANALYTICAL RESULTS FOR GROUND-WATER SAMPLES COLLECTED ON 10-14 NOVEMBER 1997 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	MW-105A	MW-105B	MW-106	MW-205	MW-206A	MW-206B	MW-207A	MW-207B	MW-208	MW-209	MW-222	MW-223	MW-224[a]	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)															
1,1,1-Trichloroethane	(<1U)	(<1U)	(<1U)	170D	10	(<1U)	5	(<1U)	11	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	19	2	(<1U)	3	(<1U)	9	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	1J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	(<1U)	(<1U)	**95D**	5	(<1U)	**66D**	(<1U)	**17**	(<1U)	(<1U)	0.5J	(<1U)	5	5
Tetrachloroethene	(<1U)	(<1U)	(<1U)	**11**	1	(<1U)	**35D**	(<1U)	**4**	(<1U)	(<1U)	(<1U)	0.6J	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	**18**	(<1U)	(<1U)	(<1U)	(<1U)	2	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	0.6J	(<1U)	(<1U)	(<1U)	(<1U)	0.8J	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total Xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	0.4J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

(a) Reanalysis conducted on sample due to low surrogate recovery.
(b) MEG (Maximum Exposure Guideline) obtained from State of Maine Department of Human Services Revised Maximum Exposure Guidelines, memorandum dated 23 October 1992. Dashes (---) indicate no MEG applicable.
(c) MCL (Maximum Contamination Level) obtained from 40 CFR Parts 141 and 142 (U.S. EPA 1994). Dashes (---) indicate no MCL applicable.

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
D = Analysis at a secondary dilution factor.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Results in bold indicate concentrations above Federal MCL and/or State MEG.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Compound	MW-225A	MW-225A DUP	MW-225B	MW-229A	MW-229B	MW-229B DUP	MW-230A	MW-231A	MW-231B	MW-303	MW-303 DUP	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)													
1,1,1-Trichloroethane	5	5	(<1U)	(<1U)	62D	64D	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	13	14	(<1U)	(<1U)	8	8	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	5
Trichloroethene	**9**	**8**	(<1U)	(<1U)	**47D**	**48D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	1	1	(<1U)	(<1U)	**4**	**4**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	3	3	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total Xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

Compound	MW-305	MW-306	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-311	MW-311 DUP	MW-313	MW-318	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)													
1,1,1-Trichloroethane	(<1U)	140D	(<1U)	(<1U)	(<1U)	(<1U)	0.7J	**5,800D**	**6,100D**	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	(<1U)	54E*	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	15	14	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**18**	**19**	(<1U)	(<1U)	---	5
Trichloroethene	(<1U)	**52D**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**940D**	**1,300D**	(<1U)	(<1U)	5	5
Tetrachloroethene	(<1U)	0.4J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**46E***	**43E***	(<1U)	(<1U)	3	5
1,1-Dichloroethene	(<1U)	**9**	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**600E***	**310D**	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	18	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	67E*	65E*	0.7J	(<1U)	70	---
Total Xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	**8**	**8**	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	4	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	4	4	(<1U)	(<1U)	5	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1,400	1,000
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	15	(<1U)	(<1U)	(<1U)	5	5

NOTE: E = Compound concentration exceeds calibration range.
* = The laboratory diluted the compound concentration below the instrument detection limit, therefore, the original positive results which exceed the linearity of the instrument have been reported. The data user should be aware that the reported value is an estimate of the true concentration.

Compound	MW-319	MW-1104	MW-1104 DUP	P-105	P-106	MW-NASB-212	QT-003	QT-004	QT-005	MEG[b]	MCL[c]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
1,1,1-Trichloroethane	12	4	4	**1,600D**	**2,300D**	0.6J	(<1U)	(<1U)	(<1U)	200	200
Total 1,2-Dichloroethene	22	0.3J	(<1U)	14	18	2	(<1U)	(<1U)	(<1U)	70	70
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	1	(<1U)	---	5
Trichloroethene	**32D**	0.4J	0.4J	**360D**	**670D**	**16**	(<1U)	(<1U)	(<1U)	5	5
Tetrachloroethene	**43D**	(<1U)	(<1U)	**7**	**15**	0.8J	(<1U)	(<1U)	(<1U)	3	5
1,1-Dichloroethene	0.9J	(<1U)	(<1U)	**160JD**	**220D**	(<1U)	(<1U)	(<1U)	(<1U)	7	7
1,1-Dichloroethane	(<1U)	1	1	45E*	57E*	(<1U)	(<1U)	(<1U)	(<1U)	70	---
Total xylenes	(<1U)	2	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	---	---
1,1,2-Trichloroethane	(<1U)	(<1U)	(<1U)	3	3	(<1U)	(<1U)	(<1U)	(<1U)	3	5
Ethylbenzene	(<1U)	1	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Chloroform	(<1U)	(<1U)	(<1U)	1	2	(<1U)	(<1U)	(<1U)	(<1U)	---	100
Benzene	(<1U)	(<1U)	(<1U)	1	3	(<1U)	(<1U)	(<1U)	(<1U)	5	5
Toluene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	0.5J	(<1U)	(<1U)	(<1U)	1,400	1,000
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	5	5

TABLE 12 SUMMARY OF ANALYTICAL RESULTS FOR WATER SAMPLES COLLECTED ON 19 NOVEMBER 1997 FROM THE GROUND-WATER EXTRACTION WELLS AND TREATMENT SYSTEM NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	EW-01	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	QT-008
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)								
Benzene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	3	3	(<1U)
Chlorobenzene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	8	9	(<1U)
Chloroethane	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	25	27	(<1U)
1,1-Dichloroethane	1J	5	(<1U)	29	16	22JD	28	(<1U)
1,1-Dichloroethene	4	13	(<1U)	43	21	(<1U)	(<1U)	(<1U)
Total 1,2-	11	8	(<1U)	59D	13	3	4	(<1U)
Tetrachloroethene	6	18	4	6	(<2U)	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	42D	150D	0.7J	450D	140D	0.5J	(<1U)	(<1U)
Trichloroethene	38D	65D	7	180D	50D	(<1U)	(<1U)	(<1U)
Methylene chloride	(<1U)	0.6J	(<1U)	2J	(<2U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	8	8	(<1U)
Toluene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	0.6J	0.6J	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	13	13	(<1U)
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	5	4	(<1U)
Chloroform	(<1U)	(<1U)	13	(<2U)	(<2U)	(<1U)	(<1U)	(<1U)
1,2-Dichloroethane	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	5	6	(<1U)
1,4-Dichlorobenzene	(<1U)	(<1U)	(<1U)	(<2U)	(<2U)	34D	30	(<1U)

NOTE: QT = Trip blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
D = Analysis at a secondary dilution factor.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	EW-01	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	QT-008
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (μg/L)								
Aluminum	NR	NR	NR	NR	NR	96.0B*	101B*	NR
Antimony	NR	NR	NR	NR	NR	1.5B*	1.2B*	NR
Arsenic	NR	NR	NR	NR	NR	2.5B*	37.9	NR
Barium	NR	NR	NR	NR	NR	91.1B*	91.7B*	NR
Calcium	NR	NR	NR	NR	NR	75,600	78,100	NR
Chromium	NR	NR	NR	NR	NR	(<4.0U)	(<4.0U)	NR
Cobalt	NR	NR	NR	NR	NR	14.2B*	14.7B*	NR
Copper	NR	NR	NR	NR	NR	(<2.0U)	11.6	NR
Iron	NR	NR	NR	NR	NR	141,000	140,000	NR
Lead	NR	NR	NR	NR	NR	2.1B*	1.9B*	NR
Magnesium	NR	NR	NR	NR	NR	12,200	13,000	NR
Manganese	NR	NR	NR	NR	NR	3,820	3,960	NR
Mercury	NR	NR	NR	NR	NR	0.17B*	0.12B*	NR
Nickel	NR	NR	NR	NR	NR	6.0B*	6.1B*	NR
Potassium	NR	NR	NR	NR	NR	6,890	7,110	NR
Selenium	NR	NR	NR	NR	NR	2.3B*	(<2.0U)	NR
Sodium	NR	NR	NR	NR	NR	18,400	25,600	NR
Thallium	NR	NR	NR	NR	NR	(<1.0U)	(<1.0U)	NR
Vanadium	NR	NR	NR	NR	NR	(<3.0U)	(<3.0U)	NR
Zinc	NR	NR	NR	NR	NR	21.2	170	NR

NOTE: NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

Analyte	Sites 1 and 3 Influent	Eastern Plume Influent	Combined Effluent	Combined Effluent DUP	Discharge Limit[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)					
Benzene	3	(<2U)	(<1U)	(<1U)	---
Chlorobenzene	10	(<2U)	(<1U)	(<1U)	---
Chloroethane	10D	(<2U)	(<1U)	(<1U)	---
1,1-Dichloroethane	16D	9	1	1	94
1,1-Dichloroethene	(<1U)	14	(<1U)	(<1U)	7
Total 1,2-Dichloroethene	3	24	(<1U)	(<1U)	70
Tetrachloroethene	(<1U)	7	(<1U)	(<1U)	5
1,1,1-Trichloroethane	(<1U)	170D	110D	120D	750
Trichloroethene	(<1U)	79	(<1U)	(<1U)	5
Methylene chloride	(<1U)	(<2U)	(<1U)	(<1U)	5
Ethylbenzene	11	(<2U)	(<1U)	(<1U)	---
Toluene	0.9J	(<2U)	(<1U)	(<1U)	---
Total xylenes	20	(<2U)	(<1U)	(<1U)	---
Vinyl chloride	5	(<2U)	(<1U)	(<1U)	2
Chloroform	(<1U)	(<2U)	3	3	---
1,2-Dichloroethane	(<1U)	(<2U)	(<1U)	(<1U)	---
1,2-Dichlorobenzene	6	(<2U)	(<1U)	(<1U)	---
1,4-Dichlorobenzene	33	(<2U)	(<1U)	(<1U)	---
TARGET ANALYTE ELEMENTS BY EPA SERIES 6000/7000 METHODS (µg/L)					
Aluminum	182B*	(<56.0U)	(<56.0U)	(<56.0U)	---
Antimony	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	---
Arsenic	152	(<2.0U)	(<2.0U)	(<2.0U)	50
Barium	38.7B*	(<4.0U)	(<4.0U)	(<4.0U)	---
Calcium	27,600	10,300	10,900	10,400	---
Chromium	(<4.0U)	(<4.0U)	(<4.0U)	(<4.0U)	10
Cobalt	(<7.0U)	(<7.0U)	(<7.0U)	(<7.0U)	---
Copper	(<2.0U)	(<2.0U)	5.7B*	6.5B*	---
Iron	41,000	150	(<53.0U)	62.6B*	---
Lead	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	15
Magnesium	9,400	3,930	4,000	3,820	---
Manganese	1,500	41.4	57.1	44.2	750
Mercury	0.11B*	0.22B*	0.14B*	0.12B*	---
Nickel	(<5.0U)	(<5.0U)	(<5.0U)	(<5.0U)	78
Potassium	3,160	1,250	1,450	1,510	---
Selenium	(<2.0U)	2.6B*	(<2.0U)	3.7B*	---
Sodium	61,100	10,300	11,800	11,200	---
Thallium	(<1.0U)	(<1.0U)	(<1.0U)	(<1.0U)	---
Vanadium	(<3.0U)	(<3.0U)	(<3.0U)	(<3.0U)	---
Zinc	104	(<12.0U)	21.7	20.4	200

(a) Ground-water treatment plant discharge limits taken from "Agreement to Accept Treated Ground Water" dated December 1994 and prepared by the Brunswick Municipal Sewer District.

NOTE: Dashes (---) indicate no discharge limit applicable to this compound/analyte.

TABLE 13 SUMMARY OF ANALYTICAL RESULTS FOR SURFACE WATER SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SW-1	SW-1 DUP	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	QT-001	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	17	16
Methylene chloride	0.7J	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	3
TARGET ANALYTE LIST ELEMENTS BY EPA 6000/7000/9000 SERIES METHODS (µg/L)											
Aluminum	1,240	107B*	142B*	1,230	159B*	226	132B*	146B*	NR	61.7B*	63.9B*
Antimony	2.2B*	2.4B*	2.0B*	1.5B*	1.7B*	3.6B*	1.6B*	1.8B*	NR	(<1.0U)	2.2B*
Arsenic	6.8B*	4.0B*	(<2.0U)	3.9B*	4.1B*	5.2B*	4.3B*	4.6B*	NR	2.7B*	4.4B*
Barium	48.7B*	37.8B*	32.2B*	62.2B*	13.8B*	15.5B*	13.8B*	16.0B*	NR	(<4.0U)	(<4.0U)
Calcium	42,900	42,400	47,900	49,600	7,470	7,290	7,640	6,960	NR	(<22.0U)	(<22.0U)
Iron	18,500	2,490	2,380	3,900	1,070	1,230	1,030	1,110	NR	73.4B*	(<52.0U)
Lead	1.0B*	(<1.0U)	(<1.0U)	1.5B*	(<1.0U)	1.6B*	(<1.0U)	(<1.0U)	NR	(<1.0U)	(<1.0U)
Magnesium	4,920	4,570	6,980	7,510	1,760	1,840	1,880	1,740	NR	(<35.0U)	(<35.0U)
Manganese	2,240	2,130	734	2,430	265	259	250	236	NR	(<8.0U)	(<8.0U)
Mercury	0.19B*	(<0.10U)	0.21B*	0.17B*	0.15B*	0.25B*	0.14B*	0.11B*	NR	0.14B*	0.12B*
Potassium	3,850	3,660	2,980	3,080	1,780	1,750	1,790	1,780	NR	(<71.0U)	(<71.0U)
Silver	1.8B*	1.9B*	2.2B*	(<1.0U)	2.2B*	2.6B*	1.9B*	2.8B*	NR	2.0B*	2.3B*
Sodium	22,500	21,700	16,400	16,700	10,300	10,500	10,700	10,300	NR	(<81.0U)	(<81.0U)
Zinc	35.2	14.6B*	(<12.0U)	13.9B*	(<12.0U)	(<12.0U)	(<12.0U)	(<12.0U)	NR	(<12.0U)	(<12.0U)

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
NR = Analysis not required.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

TABLE 14 SUMMARY OF ANALYTICAL RESULTS FOR SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SED-1	SED-1[a] DUP	SED-2	SED -3	SED-4	SED-5	SED-6	SED-7	QT-001 (µg/L)	QS-001 (µg/L)	QD-001 (µg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/kg)											
Methylene chloride	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	(<6U)	(<6U)	(<1U)	3	3
1,1,2,2-Tetrachloroethane	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	(<6U)	(<6U)	(<1U)	(<1U)	(<1U)
Chloroform	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	(<6U)	(<6U)	(<1U)	17	16
1,2-Dichlorobenzene	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	8	(<6U)	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	19	(<6U)	(<1U)	(<1U)	(<1U)
Chloroethane	(<5U)	(<6U)	(<6U)	(<7U)	(<6U)	(<6U)	10	(<6U)	(<1U)	(<1U)	(<1U)

(a) Reanalysis conducted on sample due to low surrogate recovery.

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.
U = Not detected. Sample quantitation limits are shown as (<____U).
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	SED-1	SED-1[a] DUP	SED-2	SED -3	SED-4	SED-5	SED-6	SED-7	QT-001 (µg/L)	QS-001 (µg/L)	QD-001 (µg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)											
Aluminum	6,010	6,680	3,630	3,560	3,620	2,240	2,850	3,290	NR	(<56.0U)	63.9B*
Antimony	0.74	0.66B*	0.72B*	0.64B*	0.41B*	0.25B*	0.46B*	0.36B*	NR	1.1B*	2.2B*
Arsenic	2.7	3.6	4.0	3.3	5.2	2.6	8.3	6.0	NR	3.6B*	4.4B*
Barium	28.0	29.2	13.4B*	33.9	15.4B*	10.3B*	21.8B*	28.2	NR	(<4.0U)	(<4.0U)
Beryllium	0.04B*	0.14B*	0.45B*	(<0.03U)	0.08B*	0.03B*	0.14B*	0.14B*	NR	(<0.20U)	(<0.20U)
Cadmium	(<0.06U)	(<0.07U)	(<0.08U)	(<0.08U)	(<0.07U)	(<0.07U)	0.25B*	(<0.07U)	NR	(<0.60U)	(<0.60U)
Calcium	1,530	789	531	841	637	408	742	520	NR	(<22.0U)	(<22.0U)
Chromium	13.3	12.9	15.2	6.4	4.8	2.8	7.4	6.5	NR	(<4.0U)	(<4.0U)
Cobalt	2.3B*	3.3B*	(<0.89U)	1.7B*	1.5B*	1.1B*	2.6B*	2.4B*	NR	(<7.0U)	(<7.0U)
Copper	15.4	5.3	1.0B*	(<0.70U)	4.6	1.3	3.3	2.6	NR	(<5.0U)	(<5.0U)
Iron	11,100	10,900	7,840	36,500	8,620	5,870	10,300	13,000	NR	(<52.0U)	(<52.0U)
Lead	3.3	3.7	3.0	3.1	5.6	3.8	12.3	9.5	NR	(<1.0U)	(<1.0U)
Magnesium	3,250	2,440	681	989	1,350	849	1,020	1,280	NR	(<35.0U)	(<35.0U)
Manganese	127	125	111	393	126	71.4	252	338	NR	(<8.0U)	(<8.0U)
Mercury	0.05B*	0.08B*	0.06B*	0.07B*	0.07B*	(<0.05U)	0.06B*	(<0.05U)	NR	0.14B*	0.12B*
Nickel	7.2	8.7	4.8B*	5.1B*	4.7	3.2B*	6.7	6.0	NR	(<5.0U)	(<5.0U)
Potassium	1,970	1,610	484	636	478	296	601	728	NR	(<71.0U)	(<71.0U)
Selenium	0.45B*	0.25B*	(<0.25U)	0.71	0.38B*	(<0.23U)	1.0	0.50B*	NR	(<2.0U)	(<2.0U)
Silver	(<0.10U)	(<0.11U)	(<0.13U)	(<0.14U)	(<0.11U)	(<0.11U)	(<0.12U)	(<0.12U)	NR	1.8B*	2.3B*
Sodium	83.6B*	88.6B*	90.6B*	105B*	89.5B*	109B*	98.0B*	99.2B*	NR	(<81.0U)	(<81.0U)
Vanadium	13.7	14.9	9.0	7.2	7.4	4.3B*	10.6	9.5	NR	(<3.0U)	(<3.0U)
Zinc	28.1	22.3	7.7	19.5	25.4	16.8	31.0	29.7	NR	(<12.0U)	(<12.0U)

TABLE 15 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEEP SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	SEEP-1	SEEP-3	SEEP-5	SEEP-5 DUP	QT-001	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)							
1,1-Dichloroethane	2	4	0.8J	0.8J	(<1U)	(<1U)	(<1U)
Trichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	(<1U)	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Benzene	(<1U)	(<1U)	0.7J	0.7J	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<1U)	(<1U)	110D	120D	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<1U)	(<1U)	13	14	(<1U)	(<1U)	(<1U)
Methylene chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	3	3
Vinyl chloride	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,1-Trichloroethane	0.6J	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Chlorobenzene	(<1U)	(<1U)	12	13	(<1U)	(<1U)	(<1U)
Total 1,2-Dichloroethene	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
1,1,2-Trichloroethane	(<1U)	2	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Chloroform	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)	17	16
Chloromethane	(<1U)	1	(<1U)	(<1U)	(<1U)	(<1U)	(<1U)
Acetone	(<5U)	59	(<5U)	(<5U)	(<5U)	(<5U)	(<5U)

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
SEEP-2 and SEEP-4 were dry, therefore, no aqueous samples were collected.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.
Refer to Data Quality Review section (Appendix B) for listing of Method Detection Limits for referenced analytical methods.

Analyte	SEEP-1	SEEP-3	SEEP-5	SEEP-5 DUP	QT-001	QS-002	QD-001
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (µg/L)							
Aluminum	4,350	14,200	10,900	4,360	NR	61.7B*	63.9B*
Antimony	2.6B*	38.1	5.9B*	3.7B*	NR	(<1.0U)	2.2B*
Arsenic	19.4	482	1,590	813	NR	2.7B*	4.4B*
Barium	298	3,490	268	144B*	NR	(<4.0U)	(<4.0U)
Beryllium	1.4B*	3.6B*	0.42B*	(<0.20U)	NR	(<0.20U)	(<0.20U)
Cadmium	(<0.60U)	(<0.60U)	(<0.60U)	(<0.60U)	NR	(<0.60U)	(<0.60U)
Calcium	119,000	173,000	54,400	48,400	NR	(<22.0U)	(<22.0U)
Chromium	6.0B*	148	28.4	10.5	NR	(<4.0U)	(<4.0U)
Cobalt	37.4B*	203	18.5B*	(<7.0U)	NR	(<7.0U)	(<7.0U)
Iron	677,000	5,150,000	6,240	1,200	NR	73.4B*	(<52.0U)
Lead	31.6	150	34.7	14.8	NR	(<1.0U)	(<1.0U)
Magnesium	12,500	22,400	13,600	11,100	NR	(<35.0U)	(<35.0U)
Manganese	1,350	85,300	4,530	3,530	NR	(<8.0U)	(<8.0U)
Mercury	0.90B*	0.55B*	0.23B*	(<0.10U)	NR	0.14B*	0.12B*
Nickel	36.6B*	172	27.7B*	10.2B*	NR	(<5.0U)	(<5.0U)
Potassium	4,070	5,430	9,740	8,690	NR	(<71.0U)	(<71.0U)
Selenium	2.4B*	20.7	11.4	6.7	NR	(<2.0U)	(<2.0U)
Silver	(<1.0U)	(<20.0U)	(<2.0U)	(<1.0U)	NR	2.0B*	2.3B*
Sodium	14,900	47,600	18,200	17,100	NR	(<81.0U)	(<81.0U)
Vanadium	5.0B*	(<300U)	(<30.0U)	(<3.0U)	NR	(<3.0U)	(<3.0U)
Zinc	73.9	775	141	70.7	NR	(<12.0U)	(<12.0U)

NOTE: NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

TABLE 16 SUMMARY OF ANALYTICAL RESULTS FOR LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	LT-1[a]	LT-2[a]	LT-3[a]	LT-4[a]	LT-5	LT-5 DUP	QT-001 (µg/L)	QS-001 (µg/L)	QD-001 (µg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/kg)									
Methylene chloride	(<22U)	(<23U)	26	51	(<19U)	(<13U)	(<1U)	3	3
1,1-Dichloroethane	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Total 1,2-dichloroethene	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
1,2-Dichlorobenzene	(<22U)	(<23U)	25	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
1,4-Dichlorobenzene	(<22U)	(<23U)	15J	39	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Ethylbenzene	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Total xylenes	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Trichloroethene	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
1,1,2,2-Tetrachloroethane	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Acetone	170	(<45U)	(<38U)	(<59U)	260	(<25U)	(<5U)	(<5U)	(<5U)
Vinyl chloride	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	(<1U)	(<1U)
Chloroform	(<22U)	(<23U)	(<19U)	(<29U)	(<19U)	(<13U)	(<1U)	17	16
2-Butanone	54	(<45U)	(<38U)	(<59U)	53	(<25U)	(<5U)	(<5U)	(<5U)

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples asociated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
U = Not detected. Sample quantitation limits are shown as (<____U).
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

Analyte	LT-1	LT-2	LT-3	LT-4	LT-5	LT-5 DUP	QT-001 (µg/L)	QS-001 (µg/L)	QD-001 (µg/L)
TARGET ANALYTE LIST ELEMENTS BY EPA SERIES 6000/7000 METHODS (mg/kg)									
Aluminum	8,100	14,200	6,150	2,390	145	5,620	NR	(<56.0U)	63.9B*
Antimony	1.5B*	1.9B*	0.94B*	2.2B*	5.4	0.78B*	NR	1.1B*	2.2B*
Arsenic	7.5	6.3	8.1	16.0	485	126	NR	3.6B*	4.4B*
Barium	37.0B*	36.2B*	162	58.4B*	151	27.5B*	NR	(<4.0U)	(<4.0U)
Beryllium	0.56B*	0.12B*	1.3B*	(<0.11U)	(<0.07U)	(<0.05U)	NR	(<0.20U)	(<0.20U)
Cadmium	1.8B*	(<0.27U)	0.82B*	0.36B*	(<0.22U)	(<0.14U)	NR	(<0.60U)	(<0.60U)
Calcium	6,560	1,600	4,110	10,000	948	1,840	NR	(<22.0U)	(<22.0U)
Chromium	11.1	13.2	45.6	4.4B*	(<1.5U)	6.2	NR	(<4.0U)	(<4.0U)
Cobalt	53.3	11.3B*	(<2.4U)	5.7B*	18.0B*	147	NR	(<7.0U)	(<7.0U)
Copper	13.1	10.0	4.6	(<2.8U)	(<184U)	2.0B*	NR	(<5.0U)	(<5.0U)
Iron	21,200	18,100	23,000	61,500	734,000	102,000	NR	(<52.0U)	(<52.0U)
Lead	37.5	8.4	5.8	41.8	4.7	22.7	NR	(<1.0U)	(<1.0U)
Magnesium	2,630	3,790	1,670	654	1,430	1,480	NR	(<35.0U)	(<35.0U)
Manganese	173	173	1,300	82.9	1,050	1,140	NR	(<8.0U)	(<8.0U)
Mercury	0.94B*	0.28B*	0.35B*	2.3B*	0.26B*	0.26B*	NR	0.14B*	0.12B*
Nickel	54.4	15.5B*	11.7B*	4.3B*	9.0B*	9.6	NR	(<5.0U)	(<5.0U)
Potassium	875	1,500	379	248B*	(<26.1U)	263	NR	(<71.0U)	(<71.0U)
Selenium	2.1	1.1B*	3.1	4.7	11.6	3.4	NR	(<2.0U)	(<2.0U)
Silver	(<0.39U)	(<0.45U)	0.47B*	(<0.55U)	(<0.37U)	(<0.24U)	NR	1.8B*	2.3B*
Sodium	249B*	193B*	368	231B*	143B*	140B*	NR	(<81.0U)	(<81.0U)
Vanadium	25.5	20.1B*	2.9B*	7.5B*	(<1.1U)	8.0B*	NR	(<3.0U)	(<3.0U)
Zinc	246	42.9	12.9	34.4	71.3	21.7	NR	(<12.0U)	(<12.0U)

NOTE: NR = Analysis not required.
B* = Analyte concentration is between the Instrument Detection Limit and the Contract Required Detection Limit.

TABLE 17 SUMMARY OF LANDFILL GAS MONITORING CONDUCTED ON 19 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Gas Vent Designation	Depth to Bottom (ft)	Pressure (in. H_2O)	Percent Methane	Percent Oxygen	Percent Carbon Dioxide
Gas Probes					
GP-04	7.26	Not measured[a]			
GP-05	7.21	(<1.0U)	0.0	20.6	0.5
GP-06	7.22	(<1.0U)	0.0	16.9	4.2
Gas Vents					
GV-01	6.72	(<1.0U)	3.8	9.1	10.7
GV-02	4.76	(<1.0U)	9.0	1.2	18.9
GV-03	4.52	(<1.0U)	5.4	3.3	15.4
GV-04	4.47	(<1.0U)	2.0	14.0	7.2
GV-05	4.52	(<1.0U)	2.1	10.6	7.8
GV-06	4.59	(<1.0U)	2.2	8.3	7.9
GV-07	4.63	(<1.0U)	1.1	10.5	7.5
GV-08	4.57	(<1.0U)	0.0	12.7	6.5
GV-09	4.59	(<1.0U)	0.0	13.1	5.8
GV-10	4.60	(<1.0U)	0.0	20.7	0.1
GV-11	4.54	(<1.0U)	0.0	16.2	3.4
GV-12	4.56	(<1.0U)	0.0	21.3	0.0
GV-13	4.56	(<1.0U)	2.8	12.4	8.5
GV-14	4.56	(<1.0U)	1.0	11.6	6.6

(a) GP-04 was not measured due to field error. This location has reported 0 percent methane atmospheric concentrations of oxygen, and 0 percent carbon dioxide in previous monitoring events.

NOTE: Depth to bottom measured from top of polyvinyl chloride coupling.

REFERENCES

ABB Environmental Services, Inc. (ABB-ES). 1992a. Record of Decision for a Remedial Action, Sites 1 and 3. June.

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State of Maine Department of Human Services. 1992. Summary of State and Federal Drinking Water Guidelines. Revised September. Bureau of Health - Environmental Toxicology Program. 23 October.

U.S. Environmental Protection Agency (U.S. EPA). 1994. National Primary Drinking Water Standards. Office of Water, Washington, D.C. EPA 610-P-94-001. February. (Revised 1 July 1997.)

Appendix A

Field Monitoring and Sampling Forms

A.1 Field Record of Well Gauging Forms
A.2 Field Record of Well Gauging, Purging, and Sampling Forms for Sites 1 and 3 and Eastern Plume
A.3 Field Record of Surface Water and Sediment Sampling Forms
A.4 Field Record of Seep Sampling Forms
A.5 Field Record of Landfill Gas Monitoring

Appendix A.1

Field Record of Well Gauging Forms

Appendix A.4

Field Record of Seep Sampling Forms

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Site 1 and 3			Project Number: 29600.47 / 7303
Sample Location ID: Seep 1			Date: November 6, 1997
Sampling Time: 1045-1100	Start: 1050 SW	End: 1055 Sed	Sample Team Members: KR / MC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 8" (B)

Depth of Sample from Top of Water 2" (B)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____
(X) Dedicated jar

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(X) Temperature 9.07 °C
(X) Conductivity 530 µmhs/cm
(X) ph 5.55 units
(X) Dissolved oxygen 9.50 mg/L
(X) Turbidity 0.52 NTU
(X) Eh 1165 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color Black organic material w/ greyish soil
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN-10-S1-LTSW5
✓		✓		8oz	✓	BN-10-S1-LTSD5

NOTES/SKETCH

* added 1 HCl ampule to each VOC bottle.

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1 and 3			Project Number: 29600.47/7303
Sample Location ID: Seep 2			Date: November 6, 1997
Sampling Time: 1105-1120	Start: 1115	End:	Sample Team Members: KR/MC

Sed

SW DRY

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location _____ (ft)

Depth of Sample from Top of Water _____ (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
( ) Temperature _____ °C
( ) Conductivity _____ µmhs/cm
( ) ph _____ units
( ) Dissolved oxygen _____ mg/L
( ) Turidity _____ NTU
( ) Eh _____ mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
(X) Clay
(X) Sand
( ) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color Dark brownish-black
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		8 oz	✓	BN-10-S1-LTSD4

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1 and 3			Project Number: 29600047.7303
Sample Location ID: Seep 3			Date: November 6, 1997
Sampling Time: 1120-1135	Start: 1125 SW	End: 1130 Sed	Sample Team Members: KR/MC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream (X) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 3" (SW)

Depth of Sample from Top of Water 1" (SW)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____
(X) dedicated jar

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(X) Temperature 7.23 °C
(X) Conductivity 557 µmhs/cm
(X) ph 6.90 units
(X) Dissolved oxygen 0.86 mg/L
(X) Turbidity 1345 NTU
(X) Eh 7 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
(X) Clay
( ) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color Dark brown to black (black organics)
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN-ID-S1-LTSW4
✓		✓		8oz	✓	BN-ID-S1-LTSD[illegible]3

NOTES/SKETCH

* added 1 HCl ampule to each VOC bottle.

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1 and 3	Project Number: 29600.47/7303
Sample Location ID: Seep 4	Date: November 6, 1997
Sampling Time: 1135-1145 Start: 1140 End:	Sample Team Members: KR/MC

SURFACE WATER INFORMATION Sed SW DRY

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake ( ) Seep

Water Depth and Sample Location _____ (ft)

Depth of Sample from Top of Water _____ (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
( ) None

Water Quality Parameters
( ) Temperature _____ °C
( ) Conductivity _____ µmhs/cm
( ) ph _____ units
( ) Dissolved oxygen _____ mg/L
( ) Turibidity _____ NTU
( ) Eh _____ mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
( ) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
( ) Clay
(X) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color medium brown w/ dark organics
( ) _____

Field QC Data: ( ) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓		✓		8oz	✓	BN-10-S1-LTSD2

NOTES/SKETCH

EA Engineering, Science, and Technology

FIELD RECORD OF SURFACE WATER AND SEDIMENT SAMPLING

Site Name: Sites 1 and 3			Project Number: 29600.47 / 7303
Sample Location ID: Seep 5			Date: November 6, 1997
Sampling Time: 1145 - 1205	Start: 1150 SW	End: 1200 Sed	Sample Team Members: KR / MC

SURFACE WATER INFORMATION

Type of Surface Water:
( ) Stream ( ) River
( ) Pond/Lake (X) Seep

Water Depth and Sample Location 6" (ft)

Depth of Sample from Top of Water 2" (ft)

Equipment Used for Collection:
( ) None, Grab into Bottle
( ) Bomb Sampler
( ) Pump _____
(X) Dedicated jar

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Hexane
( ) HNO_3 Solution
( ) Potable Water
(X) None

Water Quality Parameters
(X) Temperature 8.65 °C
(X) Conductivity 457 µmhs/cm
(X) ph 6.40 units
(X) Dissolved oxygen 3.11 mg/L
(X) Turbidity >1000 NTU
(X) Eh -22 mv

Velocity Measurements Obtained? (X) No ( ) Yes, See Flow Measurement Data Record _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID _____
( ) MS/MSD BN-10-S1-LTXB1

Sample Location Sketch:
( ) Yes
(X) No

Method Used:
( ) Winkler
(X) Probe

SEDIMENT INFORMATION

Type of Sample Collected:
(X) Discrete
( ) Composite

Sediment Type:
(X) Clay
( ) Sand
(X) Organic
( ) Gravel

Equipment Used for Collection:
(X) Gravity Corer
( ) Stainless Steel Split Spoon
( ) Dredge
( ) Hand Spoon/Trowel
( ) Aluminum Pans
( ) Stainless Steel Bucket
( ) Stainless Steel Auger
( ) _____

Decontamination Fluids Used:
( ) Isopropyl Alcohol
( ) ASTM Type II Water
( ) Deionized Water
( ) Liquinox Solution
( ) Hexane
( ) HNO_3 Solution
(X) Potable Water
( ) None

Sample Observations:
(X) Odor None
(X) Color orange-brownish
( ) _____

Field QC Data: (X) Field Duplicate Collected
Duplicate ID BN-10-S1-LTXD2
( ) MS/MSD

SAMPLES COLLECTED

Check if Required at this Location	Matrix: Surface Water	Matrix: Sediment	Check if Preserved with Acid/Base	Volume Required	Check if Sample Collected	Sample Bottle IDs
✓	✓		✓	1.2L	✓	BN-10-S1-LTSW3
✓		✓		8oz	✓	BN-10-S1-LTSD1

NOTES/SKETCH

+ 1 HCl ampule was added to each VOA bottle.

Appendix A.5

Field Record of Landfill Gas Monitoring

EA Engineering, Science, and Technology

FIELD RECORD OF LANDFILL GAS MONITORING

Project Name: LTMP	Project No: 29600.47.7303	Date: 11/19/97
Weather/Temperature/Barometric Pressure: Clear, 38°F		
EA Personnel: CEM	Equipment: GA-90	
Equipment Calibration Information:		

ID No.	Labeled/ Capped	Probe/Vent Locked	Casing/Seal Condition	Depth to Bottom (ft)	Pressure (in. H_2O)	Percent Methane	Percent Oxygen	Percent CO_2	Comments
GV-1	NA	NA	Good	NA	<1	3.6	9.1	10.7	Vent Complete
GV-2			Good		<1	9.0	1.2	18.7	Vent Complete
GV-3			Good		<1	5.4	~~2.0~~ 3.3	15.4	Vent Complete.
GV-4			Good		<1	2.0	14.0	7.2	Vent Complete
GV-5			Good		<1	2.1	10.6	7.8	Vent Complete
GV-6			Good		<1	2.2	8.3	7.9	Vent Complete
GV-7			Good		<1	1.1	10.5	7.5	Vent Complete
GV-8			Good		<1	0	12.7	6.5	Vent Complete
GV-9			Good		<1	0	13.1	5.6	Vent Complete
GV-10			Good		<1	0	20.7	0.1	Vent Complete
GV-11			Good		<1	0	16.2	3.4	Vent Complete
GV-12			Good		<1	0	21.3	0	Vent Incomplete *
GV-13			Good		<1	2.8	12.4	8.5	Vent Incomplete. *
GV-14	↓	↓	Good		<1	1.0	11.6	6.6	Vent Complete
GP-5	NO/YES	YES	Good		<1	0	20.6	0.5	None
GP-6	NO/YES	YES	Good	↓	<1	0	16.9	4.2	None

F:\wp\29600\47

Engineering Inspection of Sites 1 & 3

EA Personnel: Chip McLeod

Date: 4/14/97

Weather: Clear, 38°

1) Inspection of ground surface for exposure of geotextile cover (cap erosion):
None Noted → ground covered with Snow

2) Inspection of ground surface for differential settlement resulting in soil cracking or ponded water:
None Noted → ground covered with Snow

3) Identification of stressed vegetation:
None Noted → ground covered with Snow

4) Identification of seeps, rooted vegetation (trees), and/or animal burrows:
None Noted → ground covered with Snow

5) Identification of deteriorating equipment (i.e., gas probes, monitoring wells, piezometers, fencing, or drainage structures): None Noted

6) Inspection of Sites 1 & 3 storm water detention basins for erosion, sloughing, or flow-through: None Noted → Ground covered with Snow
erosion as noted during July event has gotten worse. Near Swale & outfall structure has worsened dramatically

7) Inspection of slope south of the landfill along Mere Brook for the presence of erosion or sloughing: None Noted → ground Covered with Snow.

8) Inspection of parking lots, access roads, and pavement structures:
No problems noted.

Engineering Inspection of Sites 1 & 3				
Well Number	Locked	Labelled	Depth to Water	Comments
MW-202A	✓	✓		
MW-202B	✓	✓		
MW-203	✓	✓		
MW-204	✓	✓		
MW-210A	✓	✓		
MW-210B	✓	✓		
MW-215R	✓	✓		
MW-216A	✓	✓		
MW-217A	✓	✓		
MW-217B	✓	✓		
MW-218	✓	✓		
MW-219	✓	✓		
MW-220	✓	✓		
MW-232A	✓	✓		
MW-234R	✓	✓		
MW-2101	✓	✓		
EW-6	✓	✓		
EW-7	✓	✓		
MW-201R	✓	✓		
MW-211A	✓	✓		
MW-211B	✓	✓		
MW-233	✓	✓		
EP-16	✓	✓		

Date: 11/19/97 Weather: clear, 38° F

EA Personnel: Chip Meleal

Depth to water measured at beginning of LTMP

Appendix B

Analytical Data Quality Review

APPENDIX B - CONTENTS

APPENDIX B

ANALYTICAL DATA QUALITY REVIEW

B.1 INTRODUCTION

This project utilized both field and analytical laboratory quality control measures to ensure that the data quality objectives presented in the project-specific Quality Assurance Project Plan (QAPP) contained in the Long-Term Monitoring Plan (LTMP) (ABB-ES 1994) were met.

The sampling program consisted of 81 (of which 10 were field duplicates) aqueous samples (ground-water, surface water, and leachate station seep samples) collected from Sites 1 and 3 and Eastern Plume, and 12 (of which 2 were field duplicates) sediment samples collected from Sites 1 and 3. For the combined analyses for these sites, the laboratory was provided with 1 sediment and 6 aqueous sample delivery groups (SDG) which included 2 rinsate blanks, 6 trip blanks, and 1 source water blank. Field sample duplicates and source water, equipment rinsate, and trip blanks were collected at the frequency required by the QAPP.

Analytical quality control was reviewed for compliance against data quality objectives established for precision and accuracy for each sample and analysis type, including field quality control blanks (i.e., trip blank) and field sample duplication. Analytical precision was based upon the mean relative percent difference (RPD) of the matrix spike/matrix spike duplicates (MS/MSD) for organic analysis and the RPD of the laboratory duplicates for inorganic analysis. Accuracy was based upon the reported spike recoveries for the laboratory control standard (LCS), MS/MSD and system monitoring compound (SMC) recoveries (for organic analysis), and LCS and MS recoveries (for inorganic analysis).

The ability of the laboratory to extract compounds is confirmed by the recoveries of the LCS. MS/MSD and SMC recoveries measure the effect of the sample matrix on sample preparation and measurement methodology. Known quantities of target compounds are spiked into the sample matrix for the MS/MSD, and recoveries are used to measure potential bias due to matrix effects. SMC, which are structurally similar to the targeted analytes, are used to evaluate the recovery of the target compounds, which are then used as indicators for all of the analytes. The accuracy of the LCS spike recoveries is used in conjunction with the MS/MSD when evaluating organic analyses.

Analytical completeness was quantified by reviewing the number of usable results to the total number of scheduled results. Field sample completeness was quantified by reviewing the number of samples collected to the number of samples scheduled for collection.

For clarity, the following definitions are defined for use throughout Appendix B:

- **Instrument Detection Limit (IDL)**—Defined as the lowest concentration that can be determined to be statistically different from instrument background noise (instrument blank).

- **Method Detection Limit**—The minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample for a given matrix. The method detection limit for soil and aqueous media are summarized in Tables B-1 and B-2, respectively.

- **Contract Required Detection Limit/Contract Required Quantitation Limit (CRDL/CRQL)**—Minimum level of detection acceptable under the contract Statement of Work in order to ensure regulatory compliance. This terminology is widely accepted in the industry as defined by the U.S. Environmental Protection Agency (EPA) contract laboratory protocols and is a standard list of inorganic analyte concentrations and organic compound concentrations on which laboratory flags and data validation qualifiers are based. These published concentrations are meant to be above the laboratory IDLs in order to ensure a level of confidence. The published CRDLs/CRQLs are specific to the Contract Laboratory Program methodology but are often used throughout industry methods. The data user should be aware that stated CRDLs/CRQLs are generic for a method and are affected for each sample by sample size, concentration, percent solids, and dilution factors.

- **Practical Quantitation Limit**—Defined as the lowest level that can be reasonably achieved within specified units of precision and accuracy during routine laboratory operating conditions.

The following sections summarize the results of this program:

Data Quality Review		Holding Time	Field Blank Contamination	Precision		Accuracy			Completeness	
				Laboratory	Field	SMC	MS/MSD	LCS	Analytical	Field
Aqueous	VOC	✓J	✓B	✓J	✓J	✓J	✓	✓		
	Metals	✓	✓B	✓	✓J	NA	✓J	✓		
Sediment	VOC	✓	NA	✓	✓	✓J	✓	✓	100%✓	92%✓
	Metals	✓	✓B	✓	✓J	NA	✓J	✓		

NOTE: ✓ = The data are usable as reported based on the data quality review of this quality measurement.
✓J = The data are usable, however, some analyte concentrations should be considered estimates of the true concentrations.
✓B = The data have been affected by field blank/laboratory contamination; false-positives may exist.
✘ = Some analyte concentrations are not usable.
NA = The quality measurement does not apply to this matrix or analytical methodology.
* = The re-extracted data are recommended for use based on the review of the quality control measurement.

All volatile organic compound (VOC) and metals data for Sites 1 and 3 and Eastern Plume are usable as reported based on the accuracy and precision review provided herein. Minor sample biases are identified and a detailed description of holding time issues (Section B.2), field/laboratory blank contamination (Section B.6), precision issues (Section B.3), accuracy issues (Sections B.4), and analytical and field completeness (Section B.5) are provided below.

B.1.1 Field Sampling Program Quality Control

A field quality control duplicate sample was collected for each matrix (i.e., sediment and water) and analyzed for the same parameters as the environmental samples to determine field sampling precision. The potential for cross-contamination of volatile organics during sample storage and shipment was monitored by trip blanks which were shipped with each sample cooler containing aqueous samples. The trip blanks were analyzed for VOC by EPA SW-846, Method 8260B. To document the effectiveness of decontamination protocols, rinsate blank samples were taken by running de-ionized water through non-dedicated sampling equipment into the appropriate sample containers and analyzing for the same parameters as the environmental samples. In addition, a source water blank was analyzed to assess the chemical quality of the water used in the decontamination process. The source water blank was also analyzed for the same parameters as the environmental samples.

B.1.2 Laboratory Analytical Quality Control Program

Ground-water samples collected at Sites 1 and 3 and the Eastern Plume were analyzed for Target Compound List (TCL) VOC plus a library search of the first 15 tentatively identified compounds by EPA Method 8260B. Surface water, sediment, and leachate station seep and sediment samples were collected at Sites 1 and 3 for analysis of TCL VOC plus a library search of the first 15 tentatively identified compounds by EPA Method 8260B and Target Analyte List (TAL) elements, including metals by inductively coupled plasma (EPA Method 6010A), graphite furnace (EPA Method 7841 [Tl]), and mercury by cold vapor atomic adsorption (EPA Method 7471A/7470M[1]). Arsenic, selenium, and chromium were analyzed by inductively coupled plasma (EPA Method 6010) rather than graphite furnace atomic adsorption (EPA 7000 series methods) as specified in LTMP (ABB-ES 1994); the precision and accuracy objectives and reporting requirements identified in the LTMP were met. Effective November 1996, cyanide analyses were removed from the analytical program. The quality control measures specified in the SW-846 methodology (MS/MSD, SMC, LCS, and laboratory duplicates), as well as those in the QAPP, were used by the laboratory to establish proper analytical quality control.

The range of results for the data quality objective parameters is discussed for each sample matrix in the sections below.

1. To use a microwave digestion versus water bath.

B.2 SAMPLE HOLDING TIMES

Holding times (defined as from date of sample collection to date of sample preparation/analyses) were compared against the maximum holding times identified in the quality control requirements of the referenced analytical methods. The holding times were met for all methods and sample matrixes with the exception of volatile organic analyses and mercury. The following tables summarize the effected samples.

Sample	Method Holding Time for VOAs	Exceedance of Acceptance Criteria
Sites 1 and 3 Influent DL	14 days	12 days
MW-311DL	14 days	17 days
MW-311DupDL	14 days	17 days
MW229ADL	14 days	6 days
MW229ADupDL	14 days	6 days
MW-205	14 days	35 minutes
MW-205DL	14 days	1 day
MW-306DL	14 days	5 days
NOTE: DL = This suffix indicates sample reanalysis at a dilution.		

The positive hits for diluted compound data are usability for Samples Sites 1 and 3 Influent DL, MW-229ADL, MW-229ADupDL, and MW-306DL, however, should be considered to be bias low and only estimations of the true concentrations. The data user should be aware that the diluted results for trichloroethene and 1,1,1-trichloroethane in Sample MW-311DUPDL and MW-311DL, and 1,1-dichloroethene in Sample MW-311DupDL are significantly biased low and should be considered estimates of the true concentration based on the exceedance of holding time criteria by more than 2X. The data user should note that the concentrations of these compounds may be significantly higher, as the low bias would be accentuated by the dilution factor. All non-detect compound results are unusable, however, this does not affect analytical completeness as only the positive results were reported. Non-detect compounds are reported from the original undiluted analysis. The VOC results for Sample MW-205 should NOT be considered to be bias low based on the exceedance of holding time by only 35 minutes.

Samples	Method Holding for Mercury	Exceedance of Acceptance Criteria
MW-2101	28 days	6 days
MW-234R	28 days	6 days
MW-232A	28 days	5 days
MW-216A	28 days	5 days
MW-210R	28 days	5 days
MW-202A	28 days	5 days
MW-217A	28 days	5 days
MW-215R	28 days	5 days
MW-219	28 days	4 days
MW-220	28 days	4 days
MW-204	28 days	4 days
MW-210B	28 days	4 days
MW-218	28 days	4 days
MW-217B	28 days	4 days
MW-203	28 days	4 days

Mercury was not detected in any of the samples listed above. Since the exceedance of holding time criteria was not extreme enough to cause the non-detect results to be rejected, the usability of the data is unaffected.

It should be noted that during the Monitoring Event 10 sampling, corrective actions were successfully put in place regarding the historical issue of elevated volatile organic sample pHs. All samples collected for volatile organics were collected in pre-preserved 40 mL vials, and pH determination was performed at the time of collection for each sample. Based on historic information, designated samples were carefully monitored and often required additional acid in order to obtain the proper preservation pH. Upon analysis at the laboratory, it was determined that all VOA vials had maintained the proper preservation pH of <2SU.

B.3 PRECISION

B.3.1 Volatile Organic Compounds

Five VOC were used to quantify the MS/MSD RPD. The control limits identified in the QAPP were used to evaluate the data. MS/MSD sets were performed on Samples SW-01 and MW-216A from Sites 1 and 3; Samples MW-310, Combined Effluent, MW-222, and MW-319 from Eastern Plume; and sediment Sample SED-01 from Sites 1 and 3. In addition to the field samples mentioned above, the laboratory spiked several method blanks and LCS for both Sites 1 and 3 and Eastern Plume analyses.

The surface water, monitoring wells, and combined effluent sample MS/MSD RPDs (from Sites 1 and 3 and Eastern Plume) were within the acceptance criteria with the exception of all spiked compounds in Sample MW-216A, and toluene (15 percent) in Sample MW-222. All laboratory prepared spikes (performed in both method blanks and LCS) had acceptable RPDs. The RPD for toluene in Sample MW-222 does not indicate significant imprecision (control limit is 13 percent), therefore, the data are usable as reported. Based on the MS/MSD precision of all other field samples and the acceptable precision of all spiked LCS and method blanks, the data Reviewer feels that the RPD exceedance of the MS/MSD in Sample MW-216A is an isolated incident. The recoveries of MS/MSD samples compounds in MW-216A met acceptance criteria, however, the MS sample recoveries (between 75 percent and 81 percent) were bias low, and the MSD sample recoveries (between 105 percent and 117 percent) were bias high. The MS/MSD samples surrogate recoveries for MW-216A were within 10 percent of each other, therefore, the data Reviewer does not feel that the analytical imprecision is related to a complex matrix but rather related to a single incident of poor laboratory spiking precision. MW-216A data are usable as reported, however, the concentrations should be considered estimations of the actual concentrations. The analytical precision was determined to be acceptable and the aqueous VOC data usable as reported based on the review of laboratory precision.

The sediment sample MS/MSD RPDs from Sites 1 and 3 met acceptance criteria, therefore, the analytical precision was determined to be acceptable and the sediment VOC data usable as reported based on the review of laboratory precision.

Though the analytical sequence and quality control requirements for matrix spike duplicates were met by the laboratory, a matrix-specific MS/MSD was not performed on the solid seep matrix, therefore, analytical precision for this matrix could not be evaluated by the data Reviewer.

B.3.2 Target Analyte List Metals

The 23 target analytes were used to quantify the laboratory duplicate RPD. There were no control limits identified in the QAPP for duplicate RPD for target analytes, therefore, EPA Region I RPD control limits were used (aqueous RPD should not exceed 20 percent; solid RPD should not exceed 35 percent) for analytes which are greater than 5X the reporting limit. For analytes less than 5X the reporting limit, a difference of 2X the reporting limit for aqueous samples and a difference of 4X the reporting limit for solid samples was used to evaluate laboratory precision.

The aqueous laboratory duplicate measurements were performed on Samples SW-01, MW-216A, and Eastern Plume Combined Effluent. The analytical results for copper were appropriately flagged by the laboratory for non-compliance of laboratory precision criteria in Sample MW-216A. However, the precision measurement was within the above stated acceptance criteria, therefore, the analytical precision was determined to be acceptable and the aqueous TAL metals data usable as reported based on the review of laboratory precision.

The sediment laboratory duplicate measurements were performed on Sample SD-01. The analytical results for calcium, chromium, and copper were appropriately flagged by the laboratory for non-compliance of laboratory precision criteria. However, the precision measurements were within the above stated acceptance criteria, therefore, the analytical precision was determined to be acceptable and the sediment TAL metals data usable as reported based on the review of laboratory precision.

Though the analytical sequence and quality control requirements for laboratory duplicates were met by the laboratory, a matrix-specific duplicate was not performed on the solid seep matrix, therefore, analytical precision for this matrix could not be evaluated by the data Reviewer.

B.4 ACCURACY

B.4.1 Volatile Organic Compounds

Three SMCs are normally used to measure the ability of the laboratory to purge the target analytes from the environmental samples, however, the laboratory reported an additional SMC. The SMC control limits for the aqueous and sediment samples identified in the QAPP and reported by the laboratory were identical for the first three SMC. The fourth SMC, dibromofluoromethane, was not listed in the QAPP, therefore, laboratory limits were used to evaluate the data.

The SMC recoveries for all original sediment sample analyses were within the QAPP control limits for the three typical SMCs, however, sediment SEEP Samples LT-01 (58 percent), LT-02 (48 percent), LT-03 (51 percent), and LT-04 (59 percent) exceeded the lower control limit for the fourth SMC (74 percent). The laboratory appropriately repeated the analysis for these samples. The re-analysis results indicate similar recoveries for the fourth SMC and additional non-compliances for two of the three typical SMCs. The original analysis results for Samples LT-01, LT-02, LT-03, and LT-04 should be considered the most usable and, therefore, the data are included in the summary tables (Table 16 of the report). The data user should be aware that the low recoveries of these SMCs indicates a possible low analytical bias due to sample matrix, however, the sample data should still be considered usable. All other sediment SMC recoveries were compliant for all four SMCs, therefore, the VOC results for sediment samples are usable as reported for Sites 1 and 3, based on the review of SMC accuracy.

The SMC recoveries for the aqueous sample analyses were within the QAPP control limits for the three typical SMCs, with the exception of 1,2-dichloroethane-d4 in Sample MW-224 (87 percent). Samples MW-222 (81 percent) and MW-224 (81 percent) had recoveries for the fourth SMC (bromofluorobenzene) below the lower control limit (86 percent). Based on the review of the SMC recoveries of the re-analysis of both samples, the data Reviewer recommends reporting the results of the original analysis. The re-analysis substantiates the low recoveries of

the affected SMCs. The data user should be aware that the non-compliant SMC recoveries are not significantly low enough to affect the usability of the data, however, analyte concentrations reported for the two samples (Sample MW-222 and MW-224) may be bias slightly low.

Five VOC were used to quantify the MS/MSD recoveries against QAPP control limits. The recovery limits identified in the QAPP were different than those reported by the laboratory. The data reviewer used the QAPP limits to evaluate the data. The laboratory performed MS/MSD spikes on Samples SW-1, MW-216A, MW-310, Eastern Plume Combined Effluent, MW-222, MW-319, and SD-01. In addition, the laboratory performed additional MS/MSD spikes on method blanks to support analytical precision and accuracy measurement requirements.

The aqueous and sediment samples MS/MSD accuracy were compliant with the QAPP requirements with the exception of the MS for MW-216A in which benzene (75 percent) was below the lower control limit (76 percent). One MS, performed on a reference sample, was below the lower control limit (71 percent) for the recovery of trichloroethene (70 percent). The associated MSD was compliant, and precision criteria were met for the compound. This exceedance should not be considered significant. Based on the conformance of all other MS/MSD and the accuracy of LCS recoveries, the trichloroethene and benzene data are usable as reported. The VOC results for both aqueous and sediment samples are usable as reported for Sites 1 and 3 and Eastern Plume, based on the review of MS/MSD accuracy.

Five VOC are used to quantify LCS recoveries against laboratory established control limits. No LCS recovery limits are stated in the QAPP. The LCS recovery limits used are provided in Appendix D. The aqueous and sediment LCS recoveries are within laboratory established control limits, confirming the laboratory's purging efficiency for both aqueous and solid matrices. Therefore, the aqueous and sediment VOC data are usable as reported based on the review of LCS accuracy.

B.4.2 Target Analyte List Metals

Nineteen TAL analytes were used to quantify MS recoveries for aqueous and sediment samples. Calcium, magnesium, potassium, and sodium were not required as spiking compounds due to the potential for these compounds to be present in the environmental samples at high concentrations. All of the MS samples were analyzed at the correct frequency and the accuracy control limits used to evaluate the data were taken from the QAPP.

The laboratory performed an MS on 3 aqueous samples (Eastern Plum Combined Effluent, MW-216A, and SW-01). The MS recoveries were compliant with the exception of silver (Sample SW-01 [52.5 percent]), cadmium, copper, and lead (Sample MW-216A [72.1 percent, 132.4 percent, and 74.1 percent, respectively]). The results for cadmium and lead in Sample MW216A should be considered bias low. The results for copper in Sample MW-216A should be considered bias high. Silver in Sample SW-01 should be considered to be bias low. The noted

biases are most likely due to sample matrix interferences. Sample matrices appear to have caused little or no interferences with the methodology for all other TAL metals analytes, therefore, all data are usable as reported based on the review of MS/MSD accuracy.

The laboratory performed an MS on sediment sample SED-01. The MS recoveries for sample SED-04 were within the established control limits, with the exception of antimony (48 percent) copper (50.1 percent). The results for antimony and copper in Sample SED-01 should be considered to be biased low. As indicated by previous sampling events, the results of MS for antimony indicate a consistent low bias associated with matrix interference for these sediment samples (solid LCS recoveries confirm the bias to be matrix related and not associated with laboratory performance).

All 23 TAL analytes were used to quantify the LCS recoveries against laboratory established control limits. No LCS recovery limits were stated in the QAPP. The aqueous and solid LCS recoveries for Sites 1 and 3 and Eastern Plume were within laboratory established control limits, confirming the laboratory's ability to perform sample digestion/distillation on aqueous. The aqueous and sediment LCS recoveries were within laboratory established control limits. The aqueous and sediment results should be considered usable based on the review of the LCS accuracy.

B.5 COMPLETENESS

Field sampling completeness was quantified by comparing the number of samples analyzed to the number of samples scheduled for collection. At Sites 1 and 3, 47 of 50 samples were collected for a field completeness of 92 percent. The 3 samples not collected were: 2 dry SEEP locations (SEEP-2 and SEEP-4), and a dry monitoring well (MW-202B). The data user should note that MW-210A (which had a bent casing) was replaced by MW-210R, and MW-216B was abandoned in-place in 1995.

At Eastern Plume, 36 of 36 samples were collected for a field completeness of 100 percent.

The field quality control blanks (e.g., trip blanks) were collected at the proper frequency. A total of 6 trip blanks were collected for Sites 1 and 3 and Eastern Plume. There were 2 rinsate blanks collected (associated with Sites 1 and 3). The rinsate blanks collected for Sites 1 and 3 included 1 rinsate blank associated with the sediment samples and 1 was associated with the surface water/seep samples. Rinsate blanks were not required for the Eastern Plume sampling events as dedicated equipment was used. In addition to the 2 rinsate samples, 1 source water blank for Sites 1 and 3 was submitted in compliance with the QAPP.

Analytical completeness was quantitated by reviewing the number of acceptable analytical results to the total number of analytical results. Usable analytical data for Sites 1 and 3, and Eastern Plume were available for all analytes/compounds resulting in a total analytical completeness of 100 percent. Analytical completeness met and exceeded the requirements of the QAPP.

B.6 FIELD QUALITY CONTROL BLANKS

Field quality control blanks (rinsate blanks) were evaluated for contamination that may have been introduced during field sampling activities. Trip blanks are indicators for contamination of VOC during sample shipment. In cases where contamination exists, environmental samples should be reviewed for possible false-positives. The field quality control blanks collected for this site included 6 trip blanks, 4 rinsate blanks, and 2 source water blanks.

Trip blanks associated with Sites 1 and 3, and Eastern Plume were analyzed for VOC. The results of the 6 trip blanks are shown in the following table:

Compounds	Units	QT-001	QT-002	QT-003	QT-004	QT-006	QT-008
Methylene chloride	µg/L	(<1U)	(<1U)	(<1U)	1	(<1U)	(<1U)
NOTE: U = Not detected. Sample quantitation limits are shown as (<___U).							

Concentrations of methylene chloride (a common laboratory contaminant) were detected in one trip blank (QT-004) associated with an Eastern Plume sampling event. Since methylene chloride was not detected in any of the environmental samples, it is likely that the presence of the compound is due to laboratory contamination.

The equipment rinsate blanks associated with sediment and surface water samples collected at Sites 1 and 3 were analyzed for VOC and TAL metals. The positive results of the 2 rinsate blanks (QS-001 [equipment rinsate] and QS-002 [dedicated jar rinsate]) and the associated source water blank (QD-001) associated with Sites 1 and 3 are shown in the table below:

Compounds/Analytes	Units	QS-001	QS-002	QD-001
Methylene chloride	µg/L	3	3	3
Chloroform	µg/L	17	17	16
Aluminum	µg/L	(<56.0U)	61.7B*	63.9B*
Antimony	µg/L	1.1B*	(<1U)	2.2B*
Arsenic	µg/L	3.6B*	2.7B*	4.4B*
Mercury	µg/L	0.14B*	0.14B*	0.12B*
Iron	µg/L	(<52.0U)	73.4B*	(<52.0U)
Silver	µg/L	1.8B*	2.0B*	2.3B*
NOTE: B* = Analyte concentration is between the IDL and the CRDL. U = Not detected. Sample quantitation limits are shown as (<___U).				

Organic compounds methylene chloride and chloroform were identified in Sites 1 and 3 rinsate blanks. All laboratory blanks were clean. The appearance of methylene chloride and chloroform in the source water blank indicates that both chloroform and methylene chloride were a contaminant of the rinse water and not a result of poor decontamination procedures or laboratory contamination. As noted above, methylene chloride was not detected in any of the associated

samples with the exception of Samples SW-1, LT-4, and LT-3. The results for methylene chloride in Sample SW-1 should be considered to be a false-positive due to rinse water contamination. The data user should note that the methylene chloride concentrations in the soil leachate samples also have the potential to be false-positives; however, based on the latest EPA Region I data validation guidelines, no actions are taken on soil samples for aqueous rinsate blank contamination. Chloroform was not detected in any of the associated environmental samples and, therefore, the usability of the chloroform data was unaffected.

Analytes aluminum, antimony, arsenic, mercury, iron, and silver were identified in Sites 1 and 3 rinsate blanks. The appearance of analytes aluminum, antimony, arsenic, mercury, and silver in the source water blank indicates the analytes are constituents of the rinse water and should not be considered indicators of poor field decontamination procedures. The presence of these compounds in the equipment rinsate blanks indicates a potential for these compounds to be false-positives, including iron (which does not appear to be a residual of the source water, but rather a contaminant from the sample rinsed). Based on EPA Region I guidelines for data validation, the data Reviewer did not evaluate the effects of rinsate contamination on solid samples due to the effects of percent moisture. The data user should be aware of the potential for these analytes to be false-positives due to poor equipment decontamination and or source water contamination, however, the analytical data require full data validation in order to truly evaluate the impact of field and/or laboratory contamination.

Aluminum, antimony, arsenic, mercury, and silver results in aqueous surface water samples should be considered to be false-positive results with the following exceptions: arsenic in Sample SW-2 and silver in Sample SW-3. Arsenic (Sample SW-2) and silver (SW-3) were not detected in these samples. Iron concentrations in the associated samples exceeded 5X the rinsate contamination and, therefore, the data should be considered to be usable for all the surface water samples.

Antimony, arsenic, and mercury results in aqueous SEEP samples should be considered to be false-positive results with the following exceptions: antimony in Sample SEEP-3, and arsenic and mercury in SEEP-1. Antimony, arsenic, and mercury concentrations in the above mentioned samples were greater than 5X the rinsate contamination concentration and, therefore, should be considered to be accurate concentrations. Aluminum and iron concentrations in the SEEP samples also exceeded 5X the contamination concentrations and should be considered accurate results. Silver was not detected in the samples, therefore, rinsate contamination does not affect the usability of the data.

B.7 DUPLICATE FIELD SAMPLES

Field duplicate samples are used to evaluate the overall precision for both the field and laboratory, and the homogeneity of the sample matrix. Typically, these results have more variability than laboratory precision measurements with the extremes being noted in soil matrices. Based on EPA Region I criteria for evaluating field duplicates, the following

guidelines were used to review the field duplicates taken during the sampling event. The overall precision of organic compounds was evaluated as the RPD (non-detects were defined as one-half the reporting limit) and were considered acceptable at an RPD of less than 30 percent for water samples and 50 percent for soil samples. Overall precision for inorganic analytes was evaluated by reviewing the difference of the field duplicate for analytes with concentrations less than 5 times the reporting limit (the difference cannot be greater than ±2X the reporting limit for water samples or cannot be greater than ±4X reporting limit for soil samples), and by the RPD (less than 30 percent for water samples and 50 percent for soil samples) for the analytes greater than 5 times the reporting limit. Non-detects were defined as one-half the reporting limit for difference measurements. The reporting limits used to evaluate the data are based on those presented in the QAPP.

The sample locations of the field duplicated samples were not identified to the laboratory. A total of 12 samples were duplicated for Sites 1 and 3 and Eastern Plume (collected during the ground-water, surface water, sediment, seep, and treatment plant sampling programs). Each SDG had the appropriate number of duplicate field samples collected.
The RPD results from the 8 field duplicate ground-water samples, 1 field duplicate sediment sample, 1 field duplicate surface water sample, 1 field duplicate leachate station seep sample, 1 field duplicate leachate station sediment sample, and 1 field duplicate effluent sample are shown in the tables below.

The following table shows the field duplicate results from the sediment samples associated with SDG S1SD001:

Analyte	Units	SED-1	SED-1 DUP	RPD %	Difference
Aluminum	mg/Kg	6,010	6,680	10.6	NR
Antimony	mg/Kg	0.74	0.66B*	NA	0.08
Arsenic	mg/Kg	2.7	3.6	NA	0.9
Barium	mg/Kg	28.0	29.2	NA	1.2
Beryllium	mg/Kg	0.04B*	0.14B*	NA	0.1
Calcium	mg/Kg	1,530	789	NA	741
Chromium	mg/Kg	13.3	12.9	NA	0.4
Cobalt	mg/Kg	2.3B*	3.3B*	NA	1.0
Copper	mg/Kg	15.4	5.3	NA	10.1
Iron	mg/Kg	11,100	10,900	1.8	NR
Lead	mg/Kg	3.3	3.7	NA	0.4
Magnesium	mg/Kg	3,250	2,440	NA	810
Manganese	mg/Kg	127	125	1.6	NR
Mercury	mg/Kg	0.05B*	0.08B*	NA	0.03
Nickel	mg/Kg	7.2	8.7	NA	1.5
Potassium	mg/Kg	1,970	1,610	NA	360
Selenium	mg/Kg	0.45B*	0.25B*	NA	0.2
Sodium	mg/Kg	83.6B*	88.6B*	NA	5
Vanadium	mg/Kg	13.7	14.9	NA	1.2
Zinc	mg/Kg	28.1	22.3	NA	5.8

NOTE: B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5X the reporting limit.
NR = Not required; analyte concentration was greater than 5X the reporting limit and, therefore, the RPD was applied.
J = Estimated concentration below detection limit.
Dashes (---) indicate this column does not apply to organic analysis.

All precision requirements were met for the field duplicate analyses; the results are usable as reported.

The following table shows the field duplicate results from the surface water samples associated with SDG S1QD001:

Analyte	Units	SW-1	SW-1 DUP	RPD %	Difference
Methylene chloride	µg/L	0.7J	(<1.0U)	33.3	---
Aluminum	µg/L	1,240	107B*	NA	1,133
Antimony	µg/L	2.2B*	2.4B*	NA	0.2
Arsenic	µg/L	6.8B*	4.0B*	NA	2.8
Barium	µg/L	48.7B*	37.8B*	NA	10.9
Calcium	µg/L	42,900	42,400	1.2	NR
Iron	µg/L	18,500	2,490	152	NR
Lead	µg/L	1.0B*	(<1.0U)	NA	0.5
Magnesium	µg/L	4,920	4,570	NA	350
Manganese	µg/L	2,240	2,130	5.0	NR
Mercury	µg/L	0.19B*	(<0.10U)	NA	0.14
Potassium	µg/L	3,850	3,660	NA	190
Silver	µg/L	1.8B*	1.9B*	NA	0.1
Sodium	µg/L	22,500	21,700	3.6	NR
Zinc	µg/L	35.2	14.6B*	NA	20.6

NOTE: B* = Analyte concentration is between the IDL and the CRDL.

All precision requirements were met for the field duplicate analyses, with the following exceptions: methylene chloride, aluminum, and iron. The results for aluminum and iron should be considered estimations of the true concentration in Sample SW-1 due to the lack of precision between field sample duplicates. The exceedance of the RPD for methylene chloride should not be considered significant as the positive results of methylene chloride in the SW-1 are at or near the IDL where analytical error is expected. This is confirmed by the field duplicate result of non-detect. The results for SW-1 are usable as reported with the qualification that iron and aluminum should be considered as estimates, based on the comparison of field duplicate results.

The following two tables show the field duplicate sample results associated with the monitoring well samples at Sites 1 and 3.

The first set of field duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-219	MW-219 DUP	RPD %	Difference
Aluminum	µg/L	230	376	NA	146
Antimony	µg/L	2.2B*	2.6B*	NA	0.4
Barium	µg/L	5.4B*	(<4.0U)	NA	3.4
Calcium	µg/L	9,230	9,110	1.3	NR
Chromium	µg/L	(<4.0U)	5.9B*	NA	3.9
Copper	µg/L	125	(<5.0U)	NA	122.5
Iron	µg/L	403	676	NA	273
Lead	µg/L	(<1.0U)	3.3	NA	2.8
Magnesium	µg/L	3,130	3,210	NA	80
Nickel	µg/L	(<5.0U)	10.8B*	NA	8.3
Potassium	µg/L	1,140	1,370	NA	230
Sodium	µg/L	7,130	7,610	6.5	NR

NOTE: B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5X the reporting limit.
NR = Not required; analyte concentration was greater than 5X the reporting limit and, therefore, the RPD was applied.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the field duplicate analyses, with the following exceptions: copper and iron. Copper and iron results should be considered to be estimates of the true concentration in Sample MW-219 due to the exceedance of field duplicate precision. All other analyte concentrations in Sample MW-219 are usable as reported, based on the data Reviewer's comparison of the field duplicate results.

The second set of field duplicate sample results associated with SDG S1MW001 is shown below:

Analyte	Units	MW-232A	MW-232A DUP	RPD%	Difference
Aluminum	µg/L	62.6B*	87.0B*	NA	24.4
Barium	µg/L	21.5B*	25.7B*	NA	4.2
Calcium	µg/L	36,300	41,100	12.4	NR
Chromium	µg/L	8.3B*	14.4	NA	6.1
Copper	µg/L	23.6	92.8	NA	69.2
Iron	µg/L	116	183	NA	67
Lead	µg/L	(<1.0U)	1.0B*	NA	0.5
Magnesium	µg/L	16,500	18,700	12.5	NR
Manganese	µg/L	8.6B*	11.1B*	NA	2.5
Nickel	µg/L	10.8B*	22.4B*	NA	11.6
Potassium	µg/L	2,970	3,280	NA	310
Sodium	µg/L	49,200	49,100	0.2	NR
Zinc	µg/L	(<12.0U)	12.3B*	NA	6.3

NOTE: B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5X the CRDL.
NR = Not required; analyte concentration was greater than 5X the CRDL and, therefore, the RPD was applied.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the field duplicate analyses, with the exception of copper. Copper results should be considered to be estimates of the true concentration in Sample MW-232A due to the exceedance of field duplicate precision. All other analyte concentrations in Sample MW-232A are usable as reported, based on the data Reviewer's comparison of the field duplicate results.

The following table shows the organic and inorganic field duplicate sample results associated with the aqueous seep samples in SDG S1QD001:

Analyte	Units	SEEP-5	SEEP-5 DUP	RPD %	Difference
1,1-Dichloroethane	µg/L	0.8J	0.8J	0	---
Benzene	µg/L	0.7J	0.7J	0	---
1,2-Dichlorobenzene	µg/L	110D	120D	8.7	---
1,4-Dichlorobenzene	µg/L	13	14	7.4	---
Chlorobenzene	µg/L	12	13	8.0	---
Aluminum	µg/L	10,900	4,360	85.7	NR
Antimony	µg/L	5.9B*	3.7B*	NA	2.2
Arsenic	µg/L	1,590	813	64.7	NR
Barium	µg/L	268	144B*	NA	124
Beryllium	µg/L	0.42B*	(<0.20U)	NA	0.32
Calcium	µg/L	54,400	48,400	11.7	NR
Chromium	µg/L	28.4	10.5	NA	17.9
Cobalt	µg/L	18.5B*	(<7.0U)	NA	15
Iron	µg/L	6,240	1,200	135.5	NR
Lead	µg/L	34.7	14.8	NA	19.9
Magnesium	µg/L	13,600	11,100	20.2	NR
Manganese	µg/L	4,530	3,530	24.8	NR
Mercury	µg/L	0.23B*	(<0.10U)	NA	0.18
Nickel	µg/L	27.7B*	10.2B*	NA	17.5
Potassium	µg/L	9,740	8,690	11.4	NR
Selenium	µg/L	11.4	6.7	NA	4.7
Sodium	µg/L	18,200	17,100	6.2	NR
Zinc	µg/L	141	70.7	NA	70.3

NOTE: J = Estimated concentration below detection limit.
B* = Analyte concentration is between the IDL and the CRDL.
U = Not detected. Sample quantitation limits are shown as (<____U).
NA = Not applicable; analyte concentration was less than 5X the CRDL.
NR = Not required; analyte concentration was greater than 5X the CRDL and, therefore, the RPD was applied.
D = This flag indicates an analysis at a secondary dilution factor.
Dashes (---) indicate this column does not apply to organic analysis.

The field duplicate precision requirements were met for the organic analyses. The inorganic precision requirements were met, with the following exceptions: aluminum, arsenic, iron, and zinc. Aluminum, arsenic, iron, and zinc should be considered to be estimations of the true concentrations in Sample SEEP 5 based on the exceedance of precision criteria for field duplicates. All other analytes results in Sample SEEP 5 should be considered to be usable based on the data Reviewer's review of the field duplicates. The lack of precision for this matrix may be indicative of sampling a low flow source.

The following table shows the results of the leachate station sediment sample field duplicate associated with S1SD001:

Analyte	Units	LT-05	LT-05 DUP	RPD %	Difference
Acetone	µg/Kg	260	(<25U)	181.7	---
2-Butanone	µg/Kg	53	(<25U)	123.5	---
Aluminum	mg/Kg	145	5,620	NA	5475
Antimony	mg/Kg	5.4	0.78B*	NA	4.62
Arsenic	mg/Kg	485	126	NA	359
Barium	mg/Kg	151	27.5B*	NA	123.5
Calcium	mg/Kg	948	1,840	NA	892
Chromium	mg/Kg	(<1.5U)	6.2	NA	5.45
Cobalt	mg/Kg	18.0B*	147	NA	129
Copper	mg/Kg	(<184U)	2.0B*	NA	90
Iron	mg/Kg	734,000	102,000	151.2	NR
Lead	mg/Kg	4.7	22.7	NA	18
Magnesium	mg/Kg	1,430	1,480	NA	50
Manganese	mg/Kg	1,050	1,140	8.2	NR
Mercury	mg/Kg	0.26B*	0.26B*	NA	0
Nickel	mg/Kg	9.0B*	9.6	NA	0.6
Potassium	mg/Kg	(<26.1U)	263	NA	249.9
Selenium	mg/Kg	11.6	3.4	NA	8.6
Sodium	mg/Kg	143B*	140B*	NA	3
Vanadium	mg/Kg	(<1.1U)	8.0B*	NA	7.45
Zinc	mg/Kg	71.3	21.7	NA	49.6

NOTE: B* = Analyte concentration is between the IDL and the CRDL.
U = Not detected. Sample quantitation limits are shown as (<____U).
NA = Not applicable; analyte concentration was less than 5X the CRDL.
NR = Not required; analyte concentration was greater than 5X the CRDL and, therefore, the RPD was applied.
Dashes (---) indicate this column does not apply to organic analysis.

The field duplicate precision requirements were met for all analytes with the exception of acetone, 2-butanone, aluminum, copper, and iron. The concentrations of these compounds (acetone, 2-butanone, aluminum, copper, and iron) should be considered estimations of the true concentrations in Sample LT-05. All other analytes are usable as reported based on the data Reviewer's review of the precision of the field duplicate. The lack of precision for this matrix may be indicative of sampling a sediment with high moisture content due to a low flow source which penetrates the soil. All leachate samples most likely imitate the type of precision indicated by the field duplicate for LT-05 and should be considered rough estimates of the actual given concentrations of analytes at any one given time.

The following 5 tables show the field duplicate sample results associated with the Eastern Plume monitoring well samples.

The following table shows the field duplicate sample results from the samples associated with SDG EPMW001:

Analyte	Units	MW-225A	MW-225A DUP	RPD%
1,1,1-Trichloroethane	µg/L	5	5	0
Total 1,2-Dichloroethene	µg/L	13	14	7.4
Trichloroethene	µg/L	9	8	11.8
Tetrachloroethene	µg/L	1	1	0

All precision requirements were met for the field duplicate analyses of Sample MW-225A. All analytical results are usable as reported for this sample based on the review of the field duplicate data.

The following table shows the second set of field duplicate sample results from the samples associated with SDG EPMW001:

Analyte	Units	MW-1104	MW-1104 DUP	RPD %
1,1,1-Trichloroethane	µg/L	4	4	0
Total 1,2-Dichloroethene	µg/L	0.3J	(<1U)	50
Trichloroethene	µg/L	0.4J	0.4J	0
1,1-Dichloroethane	µg/L	1	1	0
Total xylenes	µg/L	2	2	0
Ethylbenzene	µg/L	1	1	0

NOTE: J = Estimated concentration below detection limit.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the field duplicate analyses, with the exception of total 1,2-dichloroethene. The exceedance of the RPD criteria for 1,2-dichloroethene should not be considered to be significant as the concentration is at or near the IDL where analytical error is expected. All analytical results are usable as reported for Sample MW-1104 based on the review of the field duplicate data.

The following table shows the first set of field duplicate sample results from the samples associated with SDG EPMW016:

Analyte	Units	MW-229A	MW-229A DUP	RPD %
1,1,1-Trichloroethane	µg/L	62D	64D	3.2
Total 1,2-Dichloroethene	µg/L	8	8	0
Trichloroethene	µg/L	47D	48D	2
Tetrachloroethene	µg/L	4	4	0
1,1-Dichloroethene	µg/L	3	3	0

NOTE: D = This flag indicates an analysis at a secondary dilution factor.

All precision requirements were met for the field duplicate analyses for Sample MW-229A. All analytical results are usable as reported for this sample based on the review of the field duplicate data.

The second set of field duplicate sample results from the samples associated with SDG EPMW016 (MW-303 and MW-303 DUP) had no detected analytes (analyzed for VOAs only as per the scope of work) for organics in either sample and, therefore, met all precision requirements. The analytical results for MW-303 are usable as reported based on the review of the field duplicate precision.

The following table shows the set of field duplicate sample results from the samples associated with SDG EPMW030:

Analyte	Units	MW-311	MW-311 DUP	RPD %
1,1,1-Trichloroethane	µg/L	5,800D	6,100D	5
Total 1,2-Dichloroethene	µg/L	15	14	6.9
Methylene chloride	µg/L	18	19	5.4
Trichloroethene	µg/L	940D	1,300D	32
Tetrachloroethene	µg/L	46E*	43E*	6.7
1,1-Dichloroethene	µg/L	600E*	310D	63.7
1,1-Dichloroethane	µg/L	67E*	65E*	3.0
1,1,2-Trichloroethane	µg/L	8	8	0
Chloroform	µg/L	4	4	0
Benzene	µg/L	4	4	0
1,2-Dichloroethane	µg/L	15	(<1U)	187.1

NOTE: D = This flag indicates an analysis at a secondary dilution factor.
E* = Compound concentration exceeds calibration range.
U = Not detected. Sample quantitation limits are shown as (<____U).

All precision requirements were met for the field duplicate analyses, with the following exceptions: 1,1-dichloroethene and 1,2-dichloroethane. 1,1-Dichloroethene and 1,2-dichloroethane should be considered to be estimates of the true concentrations based on the

exceedance of the field duplicate precision criteria. The lack of precision of these two compounds is likely due to the laboratory required dilution as these compounds exceeded the calibration range. The laboratory did not appropriately dilute the samples as the results for tetrachloroethene, 1,1-dichloroethene and 1,1-dichloroethane were diluted out of the sample in MW-311 and tetrachloroethene and 1,1-dichloroethane were diluted out of Sample MW-311 DUP. All other compound concentrations are usable without qualification based on the review of the field duplicate data.

The following table shows the field duplicate sample results associated with the treatment plant samples from SDG S1RI001:

Analyte	Units	Combined Effluent	Combined Effluent DUP	RPD %	Difference
1,1-Trichloroethane	µg/L	1	1	0	---
Chloroform	µg/L	3	3	0	---
Copper	µg/L	5.7B*	6.5B*	NA	0.8
Calcium	µg/L	10,900	10,400	4.7	NR
Iron	µg/L	(<53.0U)	62.6B*	NA	36.1
Magnesium	µg/L	4,000	3,820	NA	180
Manganese	µg/L	57.1	44.2	NA	12.9
Mercury	µg/L	0.14B*	0.12B*	NA	0.02
Potassium	µg/L	1,450	1,510	NA	1060
Selenium	µg/L	(<2.0U)	3.7B*	NA	2.7
Sodium	µg/L	11,800	11,200	5.2	NR
Zinc	µg/L	21.7	20.4	NA	1.3

NOTE: U = Not detected. Sample quantitation limits are shown as (<____U).
B* = Analyte concentration is between the IDL and the CRDL.
NA = Not applicable; analyte concentration was less than 5X the CRDL.
NR = Not required; analyte concentration was greater than 5X the CRDL and, therefore, the RPD was applied.
Dashes (---) indicate this column does not apply to organic analysis.

All precision requirements were met for the field duplicate analyses of Sample Eastern Plume Combined Effluent. The results of this sample are usable as reported based on the review of the field duplicate data.

B.8 METHOD DETECTION LIMITS FOR SOLID AND AQUEOUS SAMPLES

Tables B-1 and B-2 provide the method detection limit for solid samples and aqueous samples, respectively. The method detection limit represents the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample for a given matrix.

TABLE B-1 METHOD DETECTION LIMITS FOR SEDIMENT SAMPLES

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3540/8270B)			
Acenaphthene	µg/kg	140	24 JUL 96
Acenaphthylene	µg/kg	97	24 JUL 96
Anthracene	µg/kg	120	24 JUL 96
Benzidine	µg/kg	59	24 JUL 96
Benzo[a]anthracene	µg/kg	93	24 JUL 96
Benzo[b]fluoranthene	µg/kg	92	24 JUL 96
Benzo[k]fluoranthene	µg/kg	94	24 JUL 96
Benzo[a]pyrene	µg/kg	93	24 JUL 96
Benzo[ghi]perylene	µg/kg	120	24 JUL 96
Benzoic acid	µg/kg	200	24 JUL 96
Benzyl alcohol	µg/kg	82	24 JUL 96
Bis(2-chloroethyl) ether	µg/kg	110	24 JUL 96
Bis(2-chloroethoxy)methane	µg/kg	100	24 JUL 96
Bis(2-ethylhexyl) phthalate	µg/kg	94	24 JUL 96
4-Bromophenyl phenyl ether	µg/kg	120	24 JUL 96
Butylbenzylphthalate	µg/kg	89	24 JUL 96
Carbazole	µg/kg	110	24 JUL 96
4-Chloroaniline	µg/kg	85	24 JUL 96
4-Chloro-3-methylphenol	µg/kg	96	24 JUL 96
2-Chloronaphthalene	µg/kg	120	24 JUL 96
2-Chlorophenol	µg/kg	110	24 JUL 96
2-Chlorophenol-d4	µg/kg	97	24 JUL 96
4-Chlorophenyl phenyl ether	µg/kg	130	24 JUL 96
Chrysene	µg/kg	110	24 JUL 96
Cyclohexanone	µg/kg	88	24 JUL 96
Dibenzo[a,h]anthracene	µg/kg	130	24 JUL 96
Dibenzofuran	µg/kg	130	24 JUL 96
Di-n-butyl phthalate	µg/kg	150	24 JUL 96
1,2-Dichlorobenzene	µg/kg	110	24 JUL 96
1,2-Dichlorobenzene-d4	µg/kg	110	24 JUL 96
1,3-Dichlorobenzene	µg/kg	110	24 JUL 96
1,4-Dichlorobenzene	µg/kg	99	24 JUL 96
3,3'-Dichlorobenzidine	µg/kg	71	24 JUL 96
2,4-Dichlorophenol	µg/kg	82	24 JUL 96
Diethyl phthalate	µg/kg	88	24 JUL 96
4,6-Dinitro-2-Methylphenol	µg/kg	240	24 JUL 96
2,4-Dimethylphenol	µg/kg	92	24 JUL 96
Dimethyl phthalate	µg/kg	84	24 JUL 96
2,4-Dinitrophenol	µg/kg	190	24 JUL 96

(a) Determined according to the procedure specified in 40 CFR 136, Appendix B.

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3540/8270B) (Continued)			
2,4-Dinitrotoluene	µg/kg	110	24 JUL 96
2,6-Dinitrotoluene	µg/kg	110	24 JUL 96
1,2-Diphenylhydrazine	µg/kg	93	24 JUL 96
Di-n-octyl phthalate	µg/kg	85	24 JUL 96
Fluoranthene	µg/kg	150	24 JUL 96
2-Fluorobiphenyl	µg/kg	550	24 JUL 96
2-Fluorophenol	µg/kg	710	10 FEB 95
Fluorene	µg/kg	150	24 JUL 96
Hexachlorobenzene	µg/kg	110	24 JUL 96
Hexachlorobutadiene	µg/kg	110	24 JUL 96
Hexachloroethane	µg/kg	110	24 JUL 96
Hexachlorocyclopentadiene	µg/kg	95	24 JUL 96
Indeno[1,2,3-cd]pyrene	µg/kg	110	24 JUL 96
Isophorone	µg/kg	100	24 JUL 96
2-Methylnaphthalene	µg/kg	110	24 JUL 96
2-Methylphenol	µg/kg	91	24 JUL 96
3+4-Methylphenol	µg/kg	100	24 JUL 96
4-Methylphenol	µg/kg	100	24 JUL 96
Naphthalene	µg/kg	100	24 JUL 96
2-Nitroaniline	µg/kg	96	24 JUL 96
3-Nitroaniline	µg/kg	91	24 JUL 96
4-Nitroaniline	µg/kg	77	24 JUL 96
Nitrobenzene	µg/kg	100	24 JUL 96
Nitrobenzene-d_5	µg/kg	430	24 JUL 96
2-Nitrophenol	µg/kg	100	24 JUL 96
4-Nitrophenol	µg/kg	87	24 JUL 96
N-Nitrosodiphenylamine	µg/kg	87	24 JUL 96
N-Nitrosodimethylamine	µg/kg	86	24 JUL 96
N-Nitroso-di-n-propylamine	µg/kg	99	24 JUL 96
2,2'-Oxybis(1-chloropropane)	µg/kg	230	24 JUL 96
Pentachlorophenol	µg/kg	140	24 JUL 96
Phenanthrene	µg/kg	130	24 JUL 96
Phenol	µg/kg	89	24 JUL 96
Phenol-d4	µg/kg	650	24 JUL 96
Pyrene	µg/kg	76	24 JUL 96
Pyridine	µg/kg	210	24 JUL 96
Terphenyl-d_3	µg/kg	280	24 JUL 96
2,4,6-Tribromophenol	µg/kg	460	24 JUL 96
1,2,4-Trichlorobenzene	µg/kg	100	24 JUL 96
2,4,5-Trichlorophenol	µg/kg	99	24 JUL 96
2,4,6-Trichlorophenol	µg/kg	92	24 JUL 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/kg	3	27 FEB 97
Acetonitrile	µg/kg	18	27 FEB 97
Acrolein	µg/kg	12	27 FEB 97
Allyl chloride	µg/kg	3	27 FEB 97
Acrylonitrile	µg/kg	14	27 FEB 97
Benzene	µg/kg	1	27 FEB 97
Bromobenzene	µg/kg	1	27 FEB 97
Bromochloromethane	µg/kg	0.8	27 FEB 97
Bromodichloromethane	µg/kg	0.9	27 FEB 97
Bromofluorobenzene	µg/kg	0.8	27 FEB 97
Bromoform	µg/kg	1	27 FEB 97
Bromomethane	µg/kg	3	27 FEB 97
2-Butanone	µg/kg	4	27 FEB 97
sec-Butylbenzene	µg/kg	1	27 FEB 97
n-Butylbenzene	µg/kg	1	27 FEB 97
tert-Butylbenzene	µg/kg	0.9	27 FEB 97
Carbon disulfide	µg/kg	2	27 FEB 97
Carbon tetrachloride	µg/kg	1	27 FEB 97
Chlorobenzene	µg/kg	0.9	27 FEB 97
Chloroethane	µg/kg	1	27 FEB 97
2-Chloroethylvinyl ether	µg/kg	4	27 FEB 97
Chloroform	µg/kg	1	27 FEB 97
1-Chlorohexane	µg/kg	2	27 FEB 97
Chloromethane	µg/kg	2	27 FEB 97
Chloroprene	µg/kg	1	09 JAN 95
2-Chlorotoluene	µg/kg	0.9	27 FEB 97
4-Chlorotoluene	µg/kg	2	27 FEB 97
Dibromochloromethane	µg/kg	0.8	27 FEB 97
1,2-Dibromo-3-chloropropane (DBCP)	µg/kg	2	27 FEB 97
1,2-Dibromoethane (EDB)	µg/kg	0.9	27 FEB 97
Dibromofluoromethane	µg/kg	1	27 FEB 97
Dibromomethane	µg/kg	1	27 FEB 97
1,2-Dichlorobenzene	µg/kg	0.9	27 FEB 97
1,3-Dichlorobenzene	µg/kg	1	27 FEB 97
1,4-Dichlorobenzene	µg/kg	1	27 FEB 97
trans 1,4-dichloro2-Butene	µg/kg	4	27 FEB 97
Dichlorodifluoromethane	µg/kg	2	27 FEB 97
1,1-Dichloroethane	µg/kg	1	27 FEB 97
1,2-Dichloroethane	µg/kg	1	27 FEB 97
1,2-Dichloroehtan-d4	µg/kg	0.8	27 FEB 97
1,1-Dichloroethene	µg/kg	2	27 FEB 97
cis-1,2-Dichloroethene	µg/kg	1	27 FEB 97

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
trans-1,2-Dichloroethene	µg/kg	2	27 FEB 97
1,2-Dichloropropane	µg/kg	4	27 FEB 97
1,3-Dichloropropane	µg/kg	1	27 FEB 97
2,2-Dichloropropane	µg/kg	2	27 FEB 97
1,1-Dichloropropene	µg/kg	1	27 FEB 97
cis-1,3-Dichloropropene	µg/kg	0.8	27 FEB 97
trans-1,3-Dichloropropene	µg/kg	0.8	27 FEB 97
Diisopropyl ether	µg/kg	2	27 FEB 97
Ethylbenzene	µg/kg	2	27 FEB 97
Ethyl acetate	µg/kg	2	27 FEB 97
Ethyl ether	µg/kg	2	27 FEB 97
Ethyl methacrylate	µg/kg	2	27 FEB 97
Hexachlorobutadiene	µg/kg	1	27 FEB 97
2-Hexanone	µg/kg	4	27 FEB 97
Iodomethane	µg/kg	0.8	27 FEB 97
Isobutyl alchol	µg/kg	40	27 FEB 97
Isopropylbenzene	µg/kg	1	27 FEB 97
p-Isopropyltoluene	µg/kg	0.9	27 FEB 97
Methacrylonitrile	µg/kg	3	27 FEB 97
Methylene chloride	µg/kg	1	27 FEB 97
Methyl methacrylate	µg/kg	2	27 FEB 97
4-Methyl-2-Pentanone	µg/kg	5	27 FEB 97
Methyl tertiary-butyl ether	µg/kg	2	27 FEB 97
Naphthalene	µg/kg	2	27 FEB 97
2-Nitropropane	µg/kg	3	27 FEB 97
Pentachloroethane	µg/kg	2	27 FEB 97
Propionitrile	µg/kg	20	27 FEB 97
n-Propylbenzene	µg/kg	1	27 FEB 97
Styrene	µg/kg	0.8	27 FEB 97
1,1,1,2-Tetrachloroethane	µg/kg	1	27 FEB 97
1,1,2,2-Tetrachloroethane	µg/kg	1	27 FEB 97
Tetrachloroethene	µg/kg	2	27 FEB 97
Tetrahydrofuran	µg/kg	4	27 FEB 97
Toluene-d_8	µg/kg	1	27 FEB 97
Toluene	µg/kg	1	27 FEB 97
1,2,3-Trichlorobenzene	µg/kg	1	27 FEB 97
1,2,4-Trichlorobenzene	µg/kg	1	27 FEB 97
1,1,1-Trichloroethane	µg/kg	1	27 FEB 97
1,1,2-Trichloroethane	µg/kg	1	27 FEB 97
Trichloroethene	µg/kg	0.9	27 FEB 97
Trichlorofluoromethane	µg/kg	2	27 FEB 97
1,2,3-Trichloropropane	µg/kg	1	27 FEB 97

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
1,1,2-Trichlorotrifluoroethane	µg/kg	3	27 FEB 97
1,2,3-Trimethylbenzene	µg/kg	2	27 FEB 97
1,2,4-Trimethylbenzene	µg/kg	1	27 FEB 97
1,3,5-Trimethylbenzene	µg/kg	1	27 FEB 97
Vinyl chloride	µg/kg	2	27 FEB 97
Vinyl acetate	µg/kg	1	27 FEB 97
m&p-Xylenes	µg/kg	2	27 FEB 97
o-Xylene	µg/kg	1	27 FEB 97
Xylenes (total)	µg/kg	2	27 FEB 97
METALS - COLD VAPOR			
Mercury	mg/kg	0.10	16 MAY 96
METALS - FURNACE (SW-846 3050/7000 SERIES)			
Antimony	mg/kg	0.2	16 MAY 96
Arsenic	mg/kg	0.2	16 MAY 96
Beryllium	mg/kg	0.1	16 MAY 96
Cadmium	mg/kg	0.1	16 MAY 96
Chromium	mg/kg	0.2	16 MAY 96
Copper	mg/kg	0.2	16 MAY 96
Lead	mg/kg	0.1	16 MAY 96
Nickel	mg/kg	0.2	16 MAY 96
Selenium	mg/kg	0.1	16 MAY 96
Silver	mg/kg	0.1	16 MAY 96
Thallium	mg/kg	0.3	16 MAY 96
METALS - ICP (SW-846 3050/6010A)			
Aluminum	mg/kg	6.5	10 APR 97
Antimony	mg/kg	2.4	10 APR 97
Arsenic	mg/kg	2.9	10 APR 97
Barium	mg/kg	2.2	16 MAY 96
Beryllium	mg/kg	0.056	10 APR 97
Boron	mg/kg	1.1	10 APR 97
Cadmium	mg/kg	0.4	16 MAY 96
Calcium	mg/kg	7.9	16 MAY 96
Chromium	mg/kg	0.41	10 APR 97
Cobalt	mg/kg	0.65	10 APR 97
Copper	mg/kg	0.51	10 APR 97
Iron	mg/kg	5.3	16 MAY 96
Lead	mg/kg	5.1	10 APR 97
Lithium	mg/kg	0.22	10 APR 97
Magnesium	mg/kg	8.5	16 MAY 96
Manganese	mg/kg	0.6	16 MAY 96
Molybdenum	mg/kg	0.49	10 APR 97
Nickel	mg/kg	0.50	10 APR 97

Parameter	Units	Method Detection Limit[a]	Date
METALS - ICP (SW-846 3050/6010A) (Continued)			
Potassium	mg/kg	6.3	10 APR 97
Selenium	mg/kg	4.4	10 APR 97
Silver	mg/kg	0.43	16 MAY 96
Sodium	mg/kg	8.1	10 APR 97
Strontium	mg/kg	0.1	16 MAY 96
Thallium	mg/kg	5.6	10 APR 97
Tin	mg/kg	2.4	16 MAY 96
Titanium	mg/kg	2.0	16 MAY 96
Vanadium	mg/kg	0.8	16 MAY 96
Zinc	mg/kg	1.2	10 APR 97
METALS - TRACE ICP (SW-846 3050/6010A)			
Antimony	mg/kg	0.13	10 APR 97
Arsenic	mg/kg	0.20	10 APR 97
Barium	mg/kg	0.61	10 APR 97
Beryllium	mg/kg	0.064	10 APR 97
Cadmium	mg/kg	0.056	10 APR 97
Chromium	mg/kg	0.0068	10 APR 97
Copper	mg/kg	0.23	10 APR 97
Lead	mg/kg	0.10	10 APR 97
Nickel	mg/kg	0.15	10 APR 97
Selenium	mg/kg	0.2	10 APR 97
Silver	mg/kg	0.11	10 APR 97
Thallium	mg/kg	0.37	10 APR 97

TABLE B-2 METHOD DETECTION LIMITS FOR AQUEOUS SAMPLES

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-846 3520/8270B)			
Acenaphthene	µg/L	3.0	26 JUL 96
Acenaphthylene	µg/L	4.0	26 JUL 96
Anthracene	µg/L	4.0	26 JUL 96
Benzidine	µg/L	18.0	09 AUG 96
Benzo[a]anthracene	µg/L	3.0	26 JUL 96
Benzo[b]fluoranthene	µg/L	4.0	26 JUL 96
Benzo[k]fluoranthene	µg/L	3.0	26 JUL 96
Benzo[a]pyrene	µg/L	4.0	26 JUL 96
Benzo[ghi]perylene	µg/L	5.0	26 JUL 96
Benzoic acid	µg/L	4.0	26 JUL 96
Benzyl alcohol	µg/L	4.0	26 JUL 96
Bis(2-chloroethyl) ether	µg/L	4.0	26 JUL 96
Bis(2-chloroethoxy)methane	µg/L	4.0	26 JUL 96
Bis(2-ethylhexyl) phthalate	µg/L	7.0	08 MAR 95
4-Bromophenyl phenyl ether	µg/L	5.0	26 JUL 96
Butylbenzylphthalate	µg/L	4.0	09 AUG 96
Carbazole	µg/L	5.0	26 JUL 96
4-Chloroaniline	µg/L	5.0	26 JUL 96
4-Chloro-3-methylphenol	µg/L	4.0	26 JUL 96
2-Chloronaphthalene	µg/L	3.0	26 JUL 96
2-Chlorophenol	µg/L	3.0	26 JUL 96
2-Chlorophenol-d^4	µg/L	4.0	08 MAR 95
4-Chlorophenyl phenyl ether	µg/L	4.0	26 JUL 96
Chrysene	µg/L	3.0	26 JUL 96
Cyclohexanone	µg/L	5.0	26 JUL 96
Dibenzo[a,h]anthracene	µg/L	4.0	26 JUL 96
Dibenzofuran	µg/L	4.0	26 JUL 96
Di-n-butyl phthalate	µg/L	4.0	09 AUG 96
1,2-Dichlorobenzene	µg/L	2.0	26 JUL 96
1,2-Dichlorobenzene-d^4	µg/L	4.0	08 MAR 95
1,3-Dichlorobenzene	µg/L	3.0	26 JUL 96
1,4-Dichlorobenzene	µg/L	3.0	26 JUL 96
3,3'-Dichlorobenzidine	µg/L	4.0	26 JUL 96
2,4-Dichlorophenol	µg/L	3.0	26 JUL 96
Diethyl phthalate	µg/L	3.0	09 AUG 96
4,6-Dinitro-2-Methylphenol	µg/L	6.0	26 JUL 96
2,4-Dimethylphenol	µg/L	3.0	26 JUL 96
Dimethyl phthalate	µg/L	3.0	09 AUG 96
2,4-Dinitrophenol	µg/L	6.0	26 JUL 96
2,4-Dinitrotoluene	µg/L	4.0	26 JUL 96
2,6-Dinitrotoluene	µg/L	4.0	26 JUL 96

(a) Determined according to 40 CFR 136 Appendix B.

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS GC/MS (SW-8463520/ 8270B) (Continued)			
1,2-Diphenylhydrazine	µg/L	5.0	26 JUL 96
Di-n-octyl phthalate	µg/L	4.0	26 JUL 96
Fluoranthene	µg/L	5.0	26 JUL 96
2-Fluorobiphenyl	µg/L	4.0	08 MAR 95
Fluorene	µg/L	4.0	26 JUL 96
2-Fluorophenol	µg/L	4.0	08 MAR 95
Hexachlorobenzene	µg/L	6.0	26 JUL 96
Hexachlorobutadiene	µg/L	4.0	26 JUL 96
Hexachloroethane	µg/L	3.0	26 JUL 96
Hexachlorocyclopentadiene	µg/L	2.0	09 AUG 96
Indeno[1,2,3-cd]pyrene	µg/L	4.0	26 JUL 96
Isophorone	µg/L	4.0	26 JUL 96
2-Methylnaphthalene	µg/L	3.0	26 JUL 96
2-Methylphenol	µg/L	4.0	26 JUL 96
4-Methylphenol	µg/L	4.0	26 JUL 96
3+4-Methylphenol	µg/L	4.0	26 JUL 96
Naphthalene	µg/L	3.0	26 JUL 96
2-Nitroaniline	µg/L	5.0	26 JUL 96
3-Nitroaniline	µg/L	4.0	26 JUL 96
4-Nitroaniline	µg/L	4.0	26 JUL 96
Nitrobenzene	µg/L	4.0	26 JUL 96
Nitrobenzene-d_5	µg/L	4.0	08 MAR 95
2-Nitrophenol	µg/L	3.0	26 JUL 96
4-Nitrophenol	µg/L	5.0	26 JUL 96
N-Nitrosodiphenylamine	µg/L	4.0	26 JUL 96
N-Nitrosodimethylamine	µg/L	4.0	26 JUL 96
N-Nitroso-di-n-propylamine	µg/L	4.0	26 JUL 96
2,2'-Oxybis(1-chloropropane)	µg/L	4.0	26 JUL 96
Pentachlorophenol	µg/L	5.0	26 JUL 96
Phenanthrene	µg/L	5.0	26 JUL 96
Phenol	µg/L	4.0	26 JUL 96
Pyrene	µg/L	4.0	26 JUL 96
Pyridine	µg/L	4.0	09 AUG 96
Terphenyl-d_{14}	µg/L	2.0	08 MAR 95
2,4,6-Tribromophenol	µg/L	3.0	08 MAR 95
1,2,4-Trichlorobenzene	µg/L	3.0	26 JUL 96
2,4,5-Trichlorophenol	µg/L	3.0	26 JUL 96
2,4,6-Trichlorophenol	µg/L	3.0	26 JUL 96

Parameter	Units	Method Detection Limit[a]	Date
PESTICIDES AND PCBs GC/ECD - ORGANOCHLORINE COMPOUNDS (SW-846 3520/8080)			
Aldrin	µg/L	0.011	15 SEP 97
α-BHC	µg/L	0.015	10 SEP 97
β-BHC	µg/L	0.030	15 SEP 97
δ-BHC	µg/L	0.030	10 SEP 97
γ-BHC (Lindane)	µg/L	0.039	15 SEP 97
α-Chlordane	µg/L	0.031	15 SEP 97
γ-Chlordane	µg/L	0.028	15 SEP 97
Chlordane (Technical)	µg/L	0.22	19 JAN 96
4,4'-DDD	µg/L	0.038	10 SEP 97
4,4'-DDE	µg/L	0.056	15 SEP 97
4,4'-DDT	µg/L	0.045	10 SEP 97
Dieldrin	µg/L	0.036	10 SEP 97
Endosulfan I	µg/L	0.019	10 SEP 97
Endosulfan II	µg/L	0.052	15 SEP 97
Endosulfan sulfate	µg/L	0.061	15 SEP 97
Endrin	µg/L	0.042	10 SEP 97
Endrin aldehyde	µg/L	0.067	15 SEP 97
Endrin ketone	µg/L	0.066	15 SEP 97
Heptachlor	µg/L	0.027	10 SEP 97
Heptachlor epoxide	µg/L	0.028	15 SEP 97
Methoxychlor	µg/L	0.216	10 SEP 97
Toxaphene	µg/L	2.126	11 SEP 97
Aroclor 1016	µg/L	0.530	09 SEP 97
Aroclor 1221	µg/L	0.51	23 JUL 96
Aroclor 1232	µg/L	0.55	23 JUL 96
Aroclor 1242	µg/L	0.69	23 JUL 96
Aroclor 1248	µg/L	0.73	23 JUL 96
Aroclor 1254	µg/L	0.31	23 JUL 96
Aroclor 1260	µg/L	0.13	12 JUL 96
Aroclor 5432	µg/L	1.1	20 JUN 96
Aroclor 5460	µg/L	1.3	20 JUN 96
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260)			
Acetone	µg/L	2.0	15 NOV 96
Allyl chloride	µg/L	0.4	15 NOV 96
Benzene	µg/L	0.3	15 NOV 96
Bromobenzene	µg/L	0.9	15 NOV 96
Bromochloromethane	µg/L	0.3	15 NOV 96
Bromodichloromethane	µg/L	0.3	15 NOV 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
Bromofluorobenzene	µg/L	0.3	15 NOV 96
Bromoform	µg/L	0.3	15 NOV 96
Bromomethane	µg/L	0.7	15 NOV 96
2-Butanone	µg/L	2.0	15 NOV 96
sec-Butylbenzene	µg/L	0.4	15 NOV 96
n-Butylbenzene	µg/L	0.5	15 NOV 96
tert-Butylbenzene	µg/L	0.4	15 NOV 96
Carbon disulfide	µg/L	0.4	15 NOV 96
Carbon tetrachloride	µg/L	0.4	15 NOV 96
Chlorobenzene	µg/L	0.3	15 NOV 96
Chloroethane	µg/L	0.4	15 NOV 96
2-Chloroethylvinyl ether	µg/L	0.9	15 NOV 96
Chloroform	µg/L	0.3	15 NOV 96
1-Chlorohexane	µg/L	0.5	15 NOV 96
Chloromethane	µg/L	0.4	15 NOV 96
2-Chlorotoluene	µg/L	0.3	15 NOV 96
4-Chlorotoluene	µg/L	0.4	15 NOV 96
Dibromochloromethane	µg/L	0.3	15 NOV 96
1,2-Dibromo-3-chloropropane (DBCP)	µg/L	0.5	15 NOV 96
1,2-Dibromoethane (EDB)	µg/L	0.2	15 NOV 96
Dibromofluoromethane	µg/L	0.3	15 NOV 96
Dibromomethane	µg/L	0.3	15 NOV 96
1,2-Dichlorobenzene	µg/L	0.3	15 NOV 96
1,3-Dichlorobenzene	µg/L	0.3	15 NOV 96
1,4-Dichlorobenzene	µg/L	0.3	15 NOV 96
trans 1,4-dichloro2-Butene	µg/L	5.0	15 NOV 96
Dichlorodifluoromethane	µg/L	0.5	15 NOV 96
1,1-Dichloroethane	µg/L	0.3	15 NOV 96
1,2-Dichloroethane	µg/L	0.4	15 NOV 96
1,2-Dichloroehtane-d_4	µg/L	0.2	15 NOV 96
1,1-Dichloroethene	µg/L	0.4	15 NOV 96
cis-1,2-Dichloroethene	µg/L	0.3	15 NOV 96
trans-1,2-Dichloroethene	µg/L	0.4	15 NOV 96
1,2-Dichloropropane	µg/L	0.4	15 NOV 96
1,3-Dichloropropane	µg/L	0.3	15 NOV 96
2,2-Dichloropropane	µg/L	0.5	15 NOV 96
1,1-Dichloropropene	µg/L	0.5	15 NOV 96
cis-1,3-Dichloropropene	µg/L	0.3	15 NOV 96
trans-1,3-Dichloropropene	µg/L	0.3	15 NOV 96

Parameter	Units	Method Detection Limit[a]	Date
VOLATILE ORGANICS GC/MS - 5 mL PURGE - CAPILLARY COLUMN (SW-846 5030/8260) (Continued)			
Ethylbenzene	µg/L	0.4	15 NOV 96
Ethyl acetate	µg/L	0.7	15 NOV 96
Ethyl ether	µg/L	0.3	15 NOV 96
Ethyl methacrylate	µg/L	0.3	15 NOV 96
Hexachlorobutadiene	µg/L	0.4	15 NOV 96
Iodomethane	µg/L	0.4	15 NOV 96
Isobutyl alchol	µg/L	0.3	15 NOV 96
Isopropylbenzene	µg/L	0.4	15 NOV 96
p-Isopropyltoluene	µg/L	0.4	15 NOV 96
Methacrylonitrile	µg/L	0.5	15 NOV 96
Methylene chloride	µg/L	0.3	15 NOV 96
Methyl methacrylate	µg/L	0.3	15 NOV 96
4-Methyl-2-Pentanone	µg/L	1.6	15 NOV 96
Methyl tertiary-butyl ether	µg/L	0.4	15 NOV 96
Naphthalene	µg/L	0.6	15 NOV 96
Pentachloroethane	µg/L	0.3	15 NOV 96
n-Propylbenzene	µg/L	0.4	15 NOV 96
Styrene	µg/L	0.3	15 NOV 96
1,1,1,2-Tetrachloroethane	µg/L	0.3	15 NOV 96
1,1,2,2-Tetrachloroethane	µg/L	0.3	15 NOV 96
Tetrachloroethene	µg/L	0.4	15 NOV 96
Toluene-d_8	µg/L	0.3	15 NOV 96
Toluene	µg/L	0.4	15 NOV 96
1,2,3-Trichlorobenzene	µg/L	0.4	15 NOV 96
1,2,4-Trichlorobenzene	µg/L	0.4	15 NOV 96
1,1,1-Trichloroethane	µg/L	0.4	15 NOV 96
1,1,2-Trichloroethane	µg/L	0.3	15 NOV 96
Trichloroethene	µg/L	0.3	15 NOV 96
Trichlorofluoromethane	µg/L	0.5	15 NOV 96
1,2,3-Trichloropropane	µg/L	0.5	15 NOV 96
1,1,2-Trichlorotrifluoroethane	µg/L	0.5	15 NOV 96
1,2,3-Trimethylbenzene	µg/L	0.3	15 NOV 96
1,2,4-Trimethylbenzene	µg/L	0.3	15 NOV 96
1,3,5-Trimethylbenzene	µg/L	0.4	15 NOV 96
Vinyl chloride	µg/L	0.5	15 NOV 96
Vinyl acetate	µg/L	0.8	15 NOV 96
m&p-Xylenes	µg/L	0.7	15 NOV 96
o-Xylene	µg/L	0.4	15 NOV 96

Parameter	Units	Method Detection Limit[a]	Date
SEMIVOLATILE ORGANICS HPLC - PAHS (SW-846 3520/8310)			
Pyrethrin I	µg/L	0.53	19 FEB 97
Pyrethrin II	µg/L	0.16	19 FEB 97
Pyrethrin (total)	µg/L	0.70	19 FEB 97
Rotenone	µg/L	0.34	19 FEB 97
INORGANIC NON-METALS/GENERAL ORGANICS			
Cyanide	mg/L	0.007	25 JUL 97
METALS - COLD VAPOR (SW-846 7470S)			
Mercury	µg/L	0.10	24 APR 97
METALS - FURNACE (SW-846 7000 SERIES)			
Antimony	µg/L	1.0	24 APR 97
Arsenic	µg/L	1.0	24 APR 97
Beryllium	µg/L	1.0	14 MAR 96
Cadmium	µg/L	1.0	24 APR 97
Chromium	µg/L	2.0	14 MAR 96
Copper	µg/L	1.4	24 APR 97
Lead	µg/L	1.4	24 APR 97
Nickel	µg/L	2.0	14 MAR 96
Selenium	µg/L	1.0	24 APR 97
Silver	µg/L	1.0	24 APR 97
Thallium	µg/L	1.4	24 APR 97
METALS - ICP (SW-846 3010/6010)			
Aluminum	µg/L	65.3	10 APR 97
Antimony	µg/L	24.1	10 APR 97
Arsenic	µg/L	29.2	10 APR 97
Barium	µg/L	17.0	08 NOV 94
Beryllium	µg/L	1.0	10 APR 97
Boron	µg/L	10.8	10 APR 97
Cadmium	µg/L	5.0	08 NOV 94
Calcium	µg/L	46.0	08 NOV 94
Chromium	µg/L	4.1	10 APR 97
Cobalt	µg/L	6.5	10 APR 97
Copper	µg/L	5.1	10 APR 97
Iron	µg/L	63.0	08 NOV 94
Lead	µg/L	51.3	10 APR 97
Lithium	µg/L	2.2	10 APR 97
Magnesium	µg/L	48.0	08 NOV 94
Manganese	µg/L	6.0	08 NOV 94
Molybdenum	µg/L	4.9	10 APR 97
Nickel	µg/L	5.0	10 APR 97
Potassium	µg/L	55.0	08 NOV 94
Selenium	µg/L	43.9	10 APR 97
Silicon	µg/L	63.0	08 NOV 94
Silver	µg/L	4.3	10 APR 97

Parameter	Units	Method Detection Limit[a]	Date
METALS - ICP (SW-846 3010/6010) (Continued)			
Sodium	µg/L	81.0	10 APR 97
Strontium	µg/L	1.0	08 NOV 94
Thallium	µg/L	55.9	10 APR 97
Tin	µg/L	25.0	08 NOV 94
Titanium	µg/L	2.0	08 NOV 94
Vanadium	µg/L	7.0	08 NOV 94
Zinc	µg/L	12.2	10 APR 97
METALS - TRACE ICP (SW-846 6010)			
Antimony	µg/L	1.3	10 APR 97
Arsenic	µg/L	2.0	10 APR 97
Barium	µg/L	6.1	10 APR 97
Beryllium	µg/L	1.0	10 APR 97
Cadmium	µg/L	1.0	10 APR 97
Chromium	µg/L	1.0	10 APR 97
Copper	µg/L	2.3	10 APR 97
Lead	µg/L	1.0	10 APR 97
Nickel	µg/L	1.5	10 APR 97
Selenium	µg/L	2.0	10 APR 97
Silver	µg/L	1.1	10 APR 97
Thallium	µg/L	3.7	10 APR 97

Appendix C

Summary Tables for Analyses of Tentatively Identified Compounds

TABLE C-1 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 5-7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	MW-202A	MW-203	MW-204	MW-210B	MW-210R	MW-215R	MW-216A	MW-217A	MW-217B	MW-218
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
Methane, chlorodifluoro-	2.98									16JN	
Dichlorodifluoromethane	3.02							3JN			
Methane, dichlorofluoro-	4.56									2JN	
Ether	5.59									5JN	
Unknown	11.65									1J	
Cyclotetrasiloxane, octameth	21.85				1JN	5JN	6JN	1JN			
Cyclotetrasiloxane, octameth	21.86	1JN	2JN								
Unknown C9H12 Benzene	23.93									1J	
Indan, 1-methyl-	26.79							1JN			
Unknown C10H12	26.79									1J	

Compound	Retention Time (min)	MW-219	MW-219 DUP	MW-220	MW-232A	MW-232A DUP	MW-234R	MW-2101	QT-002
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)									
Methane, chlorodifluoro-	2.98								
Dichlorodifluoromethane	3.02								
Methane, dichlorofluoro-	4.56								
Ether	5.59								
Unknown	11.65								
Cyclotetrasiloxane, octameth	21.85				1JN				
Cyclotetrasiloxane, octameth	21.86		1JN						
Unknown C9H12 Benzene	23.93					--			
Indan, 1-methyl-	26.79								
Unknown C10H12	26.79								

NOTE: J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
QT = Trip blank.
Only those analytes detected in at least one of the samples are shown on this table.
Samples not analyzed for Target Analyte List elements.

TABLE C-2 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 10-14 NOVEMBER 1997 AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound	Retention Time (min)	MW-105A	MW-105B	MW-106	MW-205	MW-206A	MW-206B	MW-207A	MW-207B	MW-208	MW-209	MW-222	MW-223	MW-224[a]
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)														
Ethane, 1,1,2-trichloro-1,2,	5.88				4JN									
Unknown	5.90													
Cyclotetrasiloxane, octameth	21.84													
Cyclotetrasiloxane, octameth	21.85													
Cyclotetrasiloxane, octameth	21.86													4JN
Cyclotetrasiloxane, octameth	22.20		4JN				2JN			4JN				
Cyclotetrasiloxane, octamethyl-	22.20					1JN								
Cyclotetrasiloxane, octameth	22.21													
Cyclotetrasiloxane, octameth	22.24													
Naphthalene	30.14													

Compound	Retention Time (min)	MW-225A	MW-225A DUP	MW-225B	MW-229A	MW-229A DUP	MW-229B	MW-230A	MW-231A	MW-231B	MW-303	MW-303 DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)												
Ethane, 1,1,2-trichloro-1,2,	5.88											
Unknown	5.90				1J							
Cyclotetrasiloxane, octameth	21.84											
Cyclotetrasiloxane, octameth	21.85											
Cyclotetrasiloxane, octameth	21.86											
Cyclotetrasiloxane, octameth	22.20											
Cyclotetrasiloxane, octamethyl-	22.20											
Cyclotetrasiloxane, octameth	22.21	2JN							1JN			
Cyclotetrasiloxane, octameth	22.24										2JN	
Naphthalene	30.14											

(a) Reanalysis conducted on sample due to low surrogate recovery.

NOTE: JN = Presumptive identification; estimated value.
J = Estimated concentration below detection limit.
Only those analytes detected in at least one of the samples, and the constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

Compound	Retention Time (min)	MW-305	MW-306	MW-307	MW-308	MW-309A	MW-309B	MW-310	MW-311	MW-311 DUP	MW-313
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
Ethane, 1,1,2-trichloro-1,2,	5.88										
Unknown	5.90										
Cyclotetrasiloxane, octameth	21.84	1JN									
Cyclotetrasiloxane, octameth	21.85				6JN		9JN				
Cyclotetrasiloxane, octameth	21.86										3JN
Cyclotetrasiloxane, octameth	22.20			4JN							
Cyclotetrasiloxane, octamethyl-	22.20										
Cyclotetrasiloxane, octameth	22.21		5JN								
Cyclotetrasiloxane, octameth	22.24										
Naphthalene	30.14										

Compound	Retention Time (min)	MW-318	MW-319	MW-1104	MW-1104 DUP	P-105	P-106	MW-NASB-212	QT-003	QT-004	QT-005
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)											
Ethane, 1,1,2-trichloro-1,2,	5.88										
Unknown	5.90										
Cyclotetrasiloxane, octameth	21.84										
Cyclotetrasiloxane, octameth	21.85						7JN				
Cyclotetrasiloxane, octameth	21.86										
Cyclotetrasiloxane, octameth	22.20				3JN			3JN			
Cyclotetrasiloxane, octamethyl-	22.20										
Cyclotetrasiloxane, octameth	22.21			2JN							
Cyclotetrasiloxane, octameth	22.24										
Naphthalene	30.14			1JN	1JN						

TABLE C-3 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN GROUND-WATER SAMPLES COLLECTED ON 19 NOVEMBER 1997 FROM EXTRACTION WELLS AND THE TREATMENT PLANT AT EASTERN PLUME, NAVAL AIR STATION, BRUNSWICK, MAINE

Compound/Analyte	Retention Time (min)	EW-01	EW-02	EW-03	EW-04	EW-05	EW-06	EW-07	QT-008
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)									
Methane, chlorodifluoro-	2.96						15JN		
Methane, chlorodifluoro-	2.97							11JN	
Dichlorodifluoromethane	2.98								
Methane, chlorofluoro-	3.49							4JN	
Ether	5.59						3JN		
Ether	5.60							3JN	
Ethyl Ether	5.60								
Benzene, (1-methylethyl)-	22.68						2JN		
Benzene, (1-methylethyl)-	22.69							3JN	
Isopropylbenzene	22.69								
n-propylbenzene	23.51								
1,3,5-Trimethylbenzene	23.84								
Unknown C9H12 Benzene	24.35								
1,2,4-Trimethylbenzene	24.62								
Unknown C9H12 Benzene	24.63							3J	
Unknown C9H12 Benzene	24.61						3J		
sec-butylbenzene	24.97								
p-isopropyltoluene	25.17								
1,2,3-Trimethylbenzene	25.58								
Unknown C10H14 Benzene	25.90								
n-Butylbenzene	26.07								
Unknown	26.20								
Unknown C10H14 Benzene	26.63								
Unknown C10H14 Benzene	26.85								
Unknown C10H14 Benzene	27.73						1J		
Unknown C10H14 Benzene	27.74								
Unknown C10H14 Benzene	27.77							1J	
Naphthalene	30.14						1JN		
Naphthalene	30.16							1JN	

NOTE: EW = Extraction well.
QT = Trip blank.
J = Estimated concentration below detection limit.
JN = Presumptive identification; estimated values.
N = Presumptive identification.
Only those analytes detected in at least one of the samples are shown on this table. Samples not analyzed for Target Analyte List elements.

Compound/Analyte	Retention Time (min)	Sites 1 and 3 Raw Influent	Eastern Plume Raw Influent	Eastern Plume Combined Effluent	Eastern Plume Combined Effluent DUP
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)					
Methane, chlorodifluoro-	2.96				
Methane, chlorodifluoro-	2.97				
Dichlorodifluoromethane	2.98	8N			
Methane, chlorofluoro-	3.49				
Ether	5.59				
Ether	5.60				
Ethyl Ether	5.60	27N			
Benzene, (1-methylethyl)-	22.68				
Benzene, (1-methylethyl)-	22.69				
Isopropylbenzene	22.69	3N			
n-propylbenzene	23.51	2N			
1,3,5-Trimethylbenzene	23.84	3N			
Unknown C9H12 Benzene	24.35	1J			
1,2,4-Trimethylbenzene	24.62	14N			
Unknown C9H12 Benzene	24.63				
Unknown C9H12 Benzene	24.61				
sec-butylbenzene	24.97	2N			
p-isopropyltoluene	25.17	2N			
1,2,3-Trimethylbenzene	25.58	5N			
Unknown C10H14 Benzene	25.90	1J			
n-Butylbenzene	26.07	1N			
Unknown	26.20	1J			
Unknown C10H14 Benzene	26.63	1J			
Unknown C10H14 Benzene	26.85	1J			
Unknown C10H14 Benzene	27.73				
Unknown C10H14 Benzene	27.74	1J			
Unknown C10H14 Benzene	27.77				
Naphthalene	30.14				
Naphthalene	30.16	19N			

TABLE C-4 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SURFACE WATER SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SW-1	SW-1 DUP	SW-2	SW-3	SW-4	SW-5	SW-6	SW-7	QT-001	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/L)												
Cyclotetrasiloxane, octameth	21.85							1JN				
Cyclotetrasiloxane, octameth	21.86								1JN			

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
JN = Presumptive identification; estimated value.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

TABLE C-5 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SED-1	SED-1[(a)] DUP	SED-2	SED -3	SED-4	SED-5	SED-6	SED-7	QT-001 (μg/L)	QS-001 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)												
Cyclotetrasiloxane, octameth	21.85										3JN	

(a) Reanalysis conducted on sample due to low surrogate recovery.

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples associated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
JN = Presumptive identification; estimated value.
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.

TABLE C-6 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN LEACHATE STATION SEEP SAMPLE COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	SEEP-1	SEEP-3	SEEP-5	SEEP-5 DUP	QT-001	QS-002	QD-001
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (µg/kg)								
Cyclotetrasiloxane, octameth	22.19				2JN			
Unknown	31.06		1JN					

NOTE: QT = Trip blank.
QS = Equipment rinsate blank.
QD = Source water blank.
JN = Presumptive identification; estimated.value.
Only those analytes detected in at least one of the samples are shown on this table.

TABLE C-7 SUMMARY OF TENTATIVELY IDENTIFIED COMPOUNDS REPORTED IN LEACHATE STATION SEDIMENT SAMPLES COLLECTED ON 7 NOVEMBER 1997 AT SITES 1 AND 3, NAVAL AIR STATION, BRUNSWICK, MAINE

Analyte	Retention Time (min)	LT-1[a]	LT-2[a]	LT-3[a]	LT-4[a]	LT-5[a]	LT-5 DUP	QT-001 (μg/L)	QS-001 (μg/L)	QD-001 (μg/L)
VOLATILE ORGANIC COMPOUNDS BY EPA METHOD 8260 (μg/kg)										
Cyclotetrasiloxane, octameth	21.85								3JN	

(a) Reanalysis conducted on samples due to low surrogate recoveries.

NOTE: QT = Trip blank. Samples associated with QT-001 were analyzed under a separate sample delivery group shipped on the same day.
QS = Equipment rinsate blank. Samples associated with QS-001 were analyzed under a separate sample delivery group shipped on the same day.
QD = Source water blank. Samples asociated with QD-001 were analyzed under a separate sample delivery group shipped on the same day.
JN = Presumptive identification; estimated values
Only those analytes detected in at least one of the samples, and constituents of concern listed in the Long-Term Monitoring Plan (ABB-ES 1994), are shown on this table.